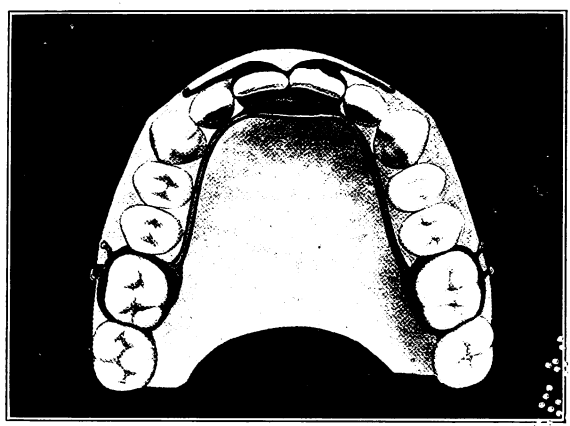


Fig. 5.

Correction. In the January issue, unfortunately, a gross error was made in illustrating the paper by Dr. Rogers. Through a misunderstanding a cut, which should have been rejected because wrongly drawn, was used. Thus the apparatus, which Dr. Rogers was at such pains to describe, is badly misrepresented. Our readers are requested to cut out the illustration on this page, and paste it over Fig. 5, page 26, in January issue.

The Gold Inlay.*

By Dr. J. V. Conzett.

Cavities in the distal surfaces of the molar teeth are difficult to fill with gold by reason of their inaccessibility, but can be much more readily filled with an inlay. The preparation of a cavity in the distal surface of a molar is not very different from that for one in the mesial surface of the same tooth, except that the difference of stress must be taken into consideration, and the anatomical differences of tooth structure will make a variation in the treatment of a cavity in the distal surface of an upper molar. In the lower molar the same outline form that is used for a cavity in the mesial surface is used, but inasmuch as the occlusal stress is very much greater upon a filling placed in the distal surface than upon one placed in the mesial surface of a lower molar, it will be necessary to make the resistance form much deeper and the seats much broader than would be necessary for a cavity in the mesial surface of the same tooth. It is usual to find a cavity or a filling in the mesial surface of a molar if we find a cavity in the distal surface, and the temptation in the making of an inlay in such cases is to make a M. O. D. cavity of it and fill at one sitting. That may be done, but I believe that better results in the making of an inlay for such a place may be obtained by making each inlay separately, for the reason that experiments have proven the fact that the larger the mass of gold in a casting the greater will be the shrinkage, and

the consequent distortion and discrepancies of fit around the margins of the cavity. In treating such cases as separate cavities, it is my practice to make an inlay in the distal portion of the tooth, and carry the inlay well toward the mesial surface of the tooth, in this way obtaining the maximum resistance to occlusal stress. The cavity is made with the usual box form, with flat seats and parallel walls, and the occlusal seat is made sufficiently deep to make sure of plenty of resistance and retention. After this inlay is finished it is cemented into the cavity, and the patient dismissed until a future sitting, if it is possible to do so. At that time the

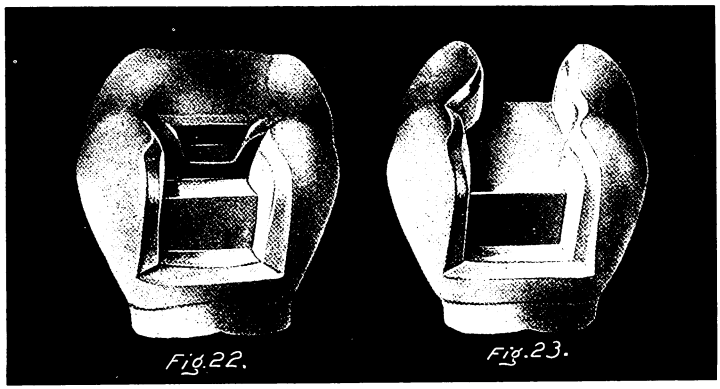


Fig. 22. Fig. 23.

cavity in the mesial surface of the tooth is prepared as if there were no cavity in the distal surface, except for the fact that a dove-tail is made in the inlay that is occupying the cavity in the distal surface, as is seen in the accompanying illustration, Fig. 22. In Fig. 23 is shown the model of the entire cavity as it would appear if the inlay in the distal surface had not been cemented to place, and the cavity in the mesial surface treated as a simple cavity in the mesio-occlusal surface. It will be seen that there is no deviation from the cavity preparation in the treatment of the case in this way, for the same preparation might well be used for a M. O. D. inlay. However, it would be found that in a large number of cases the distortion due to shrinkage would be so great that it would be difficult, and in some cases impossible to get an inlay to place in this form of preparation. If it is decided to make a M. O. D. inlay, it would be better to slope the mesio-axial and disto-axial walls a little from the occlusal to the gingival surface that the plane of withdrawal will be somewhat inclined, so that in case of distortion there will not be the difficulty in placing the inlay. I can see no good reason for making an inlay of this kind, how-

ever, if it is to be used simply as a filling to reproduce lost tooth structure, for I believe that better results as to fit, and fully as good in regard to strength are obtained by using the two-piece method. If the inlay is to be used as an abutment for a bridge, then it will be advisable to make it as one piece, for in such case it will need all of the resistance it can possibly obtain to enable it to fulfill its function.

Let me inject a word of caution against the indiscriminate use of the inlay as an abutment for bridgework. The inlay principle is all right in its place, but we must not lose our heads or our mechanical sense and ask the inlay to do the work that we expect the full crown to do. If

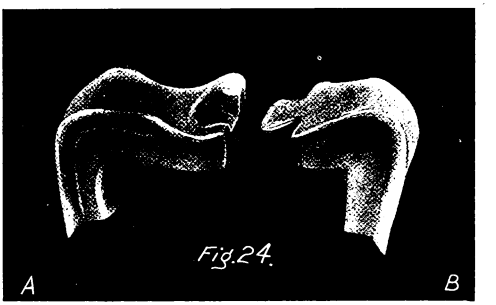


Fig. 24.

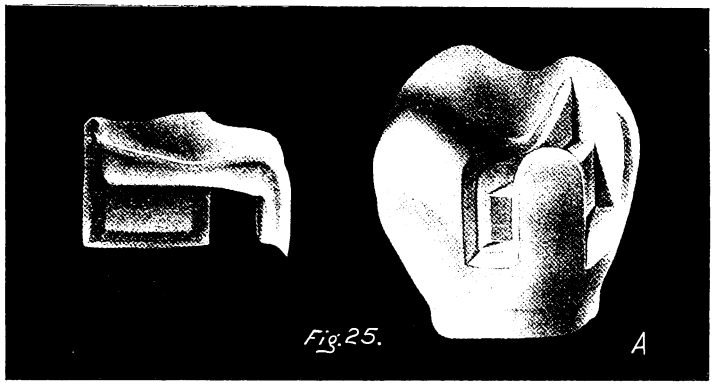
an inlay is to be used as an abutment for a bridge, be sure that the inlay will have sufficient mechanical retention (not cement retention) to enable it to withstand the forces that will be brought to bear upon it, for, if not, failure is sure to follow. This warning is interpolated in this place for the reason that I have seen failures from the use of inlay abutments, and have seen the advocacy of such questionable inlay methods in bridgework, that I feel that some one should take it upon himself to utter a word of warning.

Fig. 24 B will show the model of the inlay that has been made for the cavity in the mesial surface of the lower molar, whose distal surface has been inlayed as previously described. (Fig. 24 A.) The dove-tail will be seen, and the method of beveling the inlay in the distal surface is indicated by the inclined gold on the occlusal surface of the model. It will be seen that the inlay in the distal surface is beveled where the inlay in the mesial surface joins it, and in this way a portion of the gold in the mesial inlay overlaps the gold in the distal cavity. This is done for the purpose of obliterating the joint between the two inlays, which is effectually accomplished when the two are brought into their proper relation, and then the whole inlay ground and polished with stones, pumice, etc. If the "butt" joint were used in this place there would be the probability of a

visible line at this joint. When properly made, it is impossible to distinguish an inlay made in this way from a well-made gold filling.

Distal Cavities in Upper Molars.

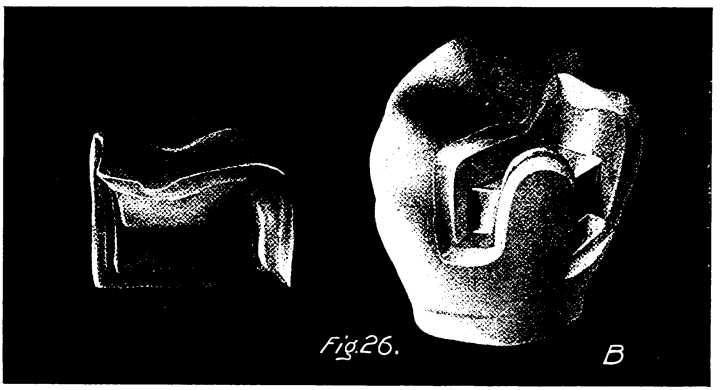
A cavity in the distal surface of an upper molar will not need the resistance form that is required for one in a lower molar, or for a cavity in the mesial surface of an upper molar, for the reason stated before, that the occlusal stress is greatest upon the mesial surfaces of upper



and the distal surfaces of the lower teeth. But the anatomical structure of the tooth will call for treatment slightly different from that accorded to a cavity in the mesial surface of the same tooth. It will be remembered that the distal fissure of an upper molar tooth is comparatively near the disto-marginal ridge, particularly at its beginning, so that as it crosses the tooth in a mesio-lingual direction, and thus forms the disto-lingual cusp, it does not leave a great amount of dentine under this cusp to strengthen it. Therefore, if a cavity is cut in the distal surface, of the proper outline form that is necessary for the safety of the filling, and the fissure is followed out to its area of susceptibility, we will find that there is little strength to the disto-lingual cusp, and also that the available tooth tissue is hardly sufficient, in many cases, to make a strong retention. Therefore, we will have to slightly deviate from the orthodox form of cavity preparation and meet the conditions that arise as a result of the anatomical difference of this portion of the tooth from other portions of the molar teeth.

If the cavity, as it presents, is very small, and the decay has not penetrated the tooth to any considerable extent, then the cavity may be safely prepared with the usual box form of flat seat and parallel walls, for in that case a sufficiently large step may be made in the occlusal surface without cutting through the triangular ridge. Even if the distal

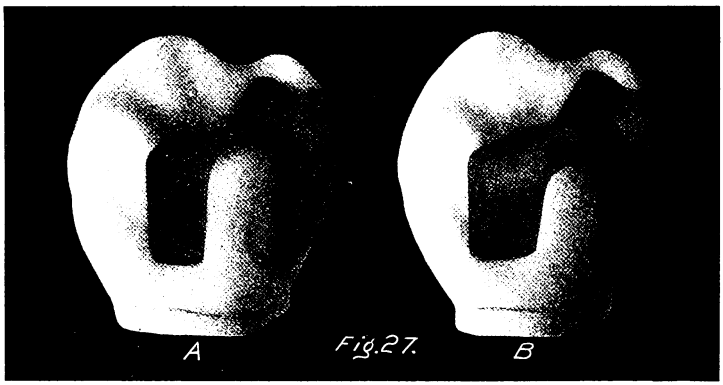
fissure is involved to the extent that it will require carrying the cavity over into the lingual surface, if the cavity is not a deep one the cutting will not need to be so great that it will endanger the cusp, and the cavity may be prepared as illustrated in Fig. 25. In this preparation the cavity in the disto-occlusal surface is opened up with a fissure bur and then enlarged with a chisel until the proper mesio-buccal outline form has been secured, when the step is cut into the occlusal surface with a fissure bur, and upon reaching the fissure the bur continues following it until the limit of the fissure is reached and the margin of the cavity has been placed in



smooth territory. After the overhanging enamel margins have been chiseled away, the step is made flat with a No. 37 or 39 inverted cone bur. In following the fissure with the inverted cone bur the procedure will be determined by the conditions. For instance, if the cavity in the occlusal step is as deep as the fissure is on the lingual surface, the bur may proceed, and make the floor of the cavity on the entire occlusal aspect of one depth. But if the fissure on the lingual surface dips down farther than it is advisable to deepen the cavity, then a step off will be made on the lingual surface, making the step in that region as much deeper than upon the occlusal surface as the fissure is deeper than the floor of the cavity. This latter form is the one that is illustrated in Fig. 25.

If the decay has proceeded so far that any considerable portion of the tooth has been lost, the condition of this portion of an upper molar will not lend itself to this form of cavity preparation, for the triangular ridge would become involved and cause an undercut that would be fatal to the withdrawal of the model if it were not cut through. In a case of that kind the cavity must be extended through the triangular ridge, and the margin made in the smooth territory immediately back of the central pit.

We frequently find that these cases are complicated by the involvement of the lingual fissure and the necessity of carrying the cavity over into it so weakens the disto-lingual cusp that has already been weakened by the great extent of decay and consequent necessary cutting of the cavity, that it will be found necessary to strengthen it if we do not wish to have the embarrassment of having it break off after the inlay has been completed. In effecting this strengthening, the cusp is ground off a little, the margin beveled, the gold carried over it, and a cusp built out of the gold, as illustrated in Fig. 26. In Fig. 27 we see the inlay for Fig. 25 in place at



A, and the inlay for Fig. 26 is shown in place at B, extending over and protecting the disto-lingual cusp.

When we find a cavity in the distal portion of an upper molar we frequently find that there is a cavity or a filling in the mesial surface of the same tooth, just as we will in the lower teeth, and we will find the laws governing the treatment of those cases in the lower teeth equally applicable in the upper teeth, except that it is not necessary to dove-tail the one inlay into the other in the upper teeth, for the reason that the filling in the mesial surface, that has to bear the brunt of the burden of masticatory stress, is sufficiently entrenched against the stress by reason of the anatomical formation of the tooth. We will find that the mesial surface of an upper molar naturally lends itself to a dove-tail form of cavity preparation mesio-distally, by reason of the situation of the central pit. The fact is, it is difficult not to give a cavity in this situation a dove-tail formation. This preparation effectually militates against the displacement of the inlay mesially through the stress that comes upon it from the movement of the jaws in mastication, and as all of such stress exerted upon the inlay in the distal surface tends to drive it more firmly into the

cavity, it is not necessary to dove-tail it into the inlay in the mesial surface for its protection. Therefore, it is only necessary to bring the two inlays into immediate contact, bevel the edge of the one that has first been placed, that the last one may have an edge of gold cast upon it that will so burnish down in the operation of polishing that it will perfectly conceal the joint, and all that is necessary for strength or appearance has been accomplished. In all cases the beveling of the cavo-surface angle must not be forgotten.

Treatment of Extensive Caries.

While it is always advisable to have the ideal in mind, and to attempt to make all cavities conform to that ideal, it is not always possible to attain unto it with the cavities that present in the course of an ordinary practice. If all cavities could be seen in their incipiency, then the ideal form could nearly always be carried out. But I have been frequently asked, "How would you make a cavity of the shape that you advocate, when the tooth has been so badly decayed that it will be impossible to withdraw a model from a cavity made in it?" The criticism is a valid one, taken from a superficial reading of the system, and as the cases of extreme decay are very common, it will be well to take such cases under advisement. In all large cavities the backward decay is considerable, and in many cases of such extent that the cutting necessary for extension for prevention is not sufficient to cause the outline form to be large enough to permit an inlay made in the cavity to draw, and we also have many cases where there is a pulp complication necessitating the opening of the pulp chamber and its subsequent filling. In all of these cases the matter is easily remedied by the making of a cement filling in the tooth, and then upon the hardening of the cement cutting the ideal cavity in the cement. Or when there is an under cut that will prevent the withdrawal of the model, the under cut can be filled with cement, and the cavity proceeded with as if it were all tooth substance. Sometimes it is not convenient to wait for the cement to harden, and under such circumstances the under cuts can be filled with ordinary modeling compound and the cavity completed with its assistance. Occasionally this method will be found valuable when for any reason the root canal is not filled, and it is desirable to obtain a wax model prior to the filling of the same. In that case the pulp chamber may be filled with the modeling compound and the model made as though the whole tooth were present. Then after the root canals have been properly and permanently filled the inlay can be cemented to place, and will fit as well as though the model had been made in all tooth substance. In very deep cavities it is well to make it a rule either to fill out the cavity with cement or compound prior to the obtaining of a model, or to hollow out the model after it has been ob-

tained, in the manner which will be taken up in the discussion on the making of the model, for the reason that large masses of gold in an inlay should be avoided as much as possible to overcome the troubles that arise from the great amount of contraction that takes place in large masses of gold.

Tooth Forms.

By F. Stanwood Welden, D.D.S., Brooklyn, N. Y.

Following most precedents, the advent of some truly great idea necessarily gives birth to many contributing and helpful sequences.

FIG. 1.

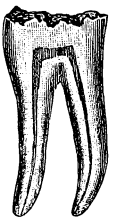


FIG. 2.

Beyond doubt, the latest great idea for the advancement of dentistry is contributed by Dr. Taggart, as set forth in the advent of casting.

I herewith take the liberty of describing the use of a device of mine, which may be of help and benefit to the profession in general.

This device is a celluloid cap (Fig. 1), which is transparent, tough and resilient. These caps are made in seventy-two different molds, which will be found to fit, either exactly or approximately, any one of the teeth comprising the ordinary denture.

These forms will be of great assistance in making patterns for inlays, particularly where large restorations are to be made. To illustrate, I will describe the restoration of the crown of a molar, where the natural crown has been destroyed, to the extent that the pulp is not jeopardized. (Fig. 2.)

After properly preparing for inlay, measure the circumference of root with binding-wire, and select a "tooth form" of appropriate size and mold. Fit this to the tooth as you would an ordinary gold cap. Wipe the inner surface of the tooth form with a very thin coating of vaseline. Fill the form with soft inlay wax slightly in excess of the volume of

restoration to be made and place upon tooth to be restored. Direct the patient to bite to place and occlusion as shown in Fig. 3. Cool with cold water and remove.

Then take a sharp lance and carefully cut down the side of "tooth form," taking due care not to mar the pattern. Lay back the flaps thus

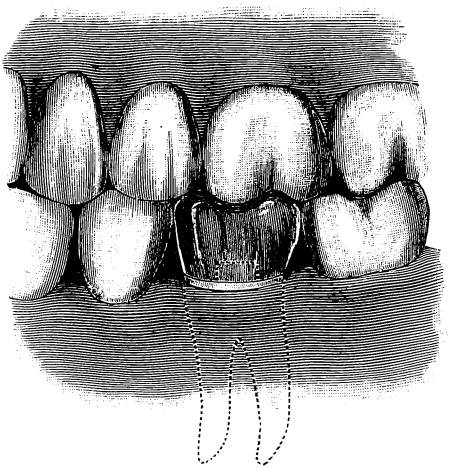


FIG. 3.

made, and a smooth, perfectly molded pattern that is in correct occlusion is ready for casting.

This proceeding may be followed for any section or part of a tooth to be restored, with never failing exactness, and with great economy of time and patience.

The tough, resilient nature of the tooth form allows the antagonizing teeth to impress the soft wax, and molds a perfect occlusion, which is preserved upon cooling.

Another function of great value is performed by these tooth forms. When the inlay is set with cement, the tooth form which was used in molding the pattern may be used to protect the cemented seam where the inlay joins the tooth being restored, this being the only recognized weakness of the inlay. This is done by filling the form with cement or even plaster of Paris and covering tooth and inlay, thus protecting the cemented joint from any moisture or chemical contamination, and allows it to acquire its maximum hardness and efficiency; after a few days the "form" may be removed and the cement easily chipped away.

Another valuable use will be found in contouring fillings of amalgam, cement, or any plastic used for filling.

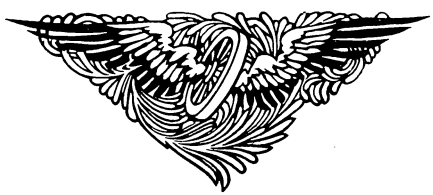
Those who are partial to the silicate cements will obtain startling results by the use of the tooth forms.

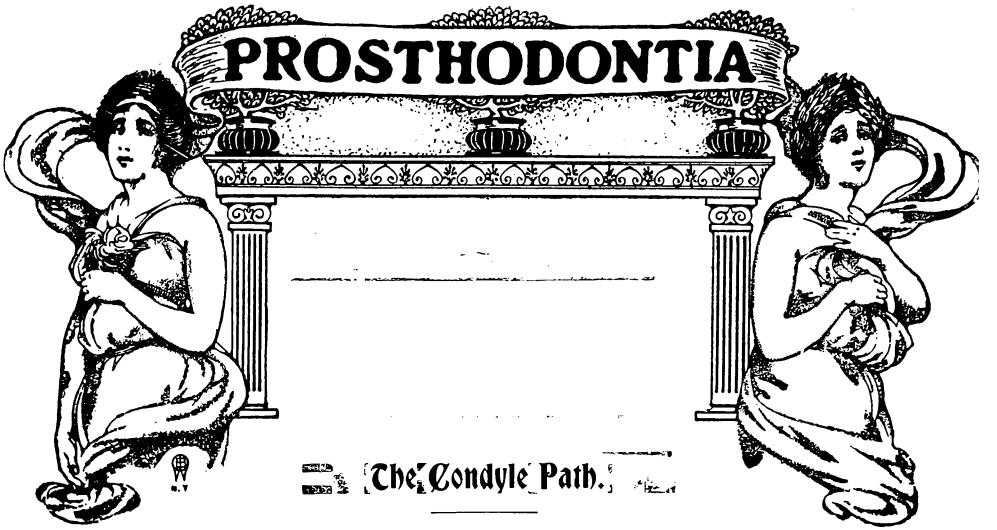
Again the tooth forms will be of great assistance in holding treatments in teeth, being easily and quickly adapted.

In making gold dummies for cast bridge work these "forms" will be found extremely valuable.

They may be cut to suit any demand for any part of a tooth, such as a corner cusp or side, as the case may be.

Doubtless many ingenious minds will find as many different uses as the occasion presents, I have merely set forth a few that I have found practical.





The Condyle Path.

Its Importance as a Factor in Masticatory Effort and Means of Registration.

By James H. Prothero, D.D.S., Chicago, Ill.

Read before the Second District Dental Society, October, 1910.

The efficiency of a machine is dependent upon its general fitness for the work which it is designed to perform, the correct proportion and strength of its internal parts, and the proper assembling of these several elements so that when in operation co-ordinate movements result. Otherwise kinetic energy is dissipated and the usefulness of the mechanism is impaired.

The mandible with its complement, the upper maxillae, may be regarded as a machine for grinding, triturating and preparing food for introduction into the digestive tract. It represents a double or divergent lever of the third class, viz., one in which the power is applied between the fulcrum and the weight to be overcome. (Fig. 1.) Unlike the ordinary lever, however, the condyle heads which represent the fulcrum ends of the mandible, are not confined to specific points of rotation, but shift or glide in definite paths formed by the anterior walls of the glenoid fossae and the *eminentia articularis,* situated immediately in front. This path is known as the condyle path.

The research work of various investigators shows conclusively that the condyle paths, or fulcrum tracts of the condyle heads, vary greatly in different individuals, in their angles of inclination, as they pass forward and downward. Variations ranging from a horizontal plane to an angle of 70 degrees have been recorded. (Fig. 2.) Frequently in the same subject a marked difference in the two paths is occasionally apparent.

Under normal conditions the cusps of the teeth are so formed, and the teeth themselves so placed in their respective arches, that in lateral and protrusive movements the cusps of the lower teeth glide freely along definite paths between those of the upper, without in-

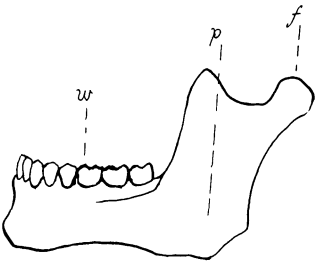


Fig. 1.

Fig. 1. The Mandible as a lever of the third class.

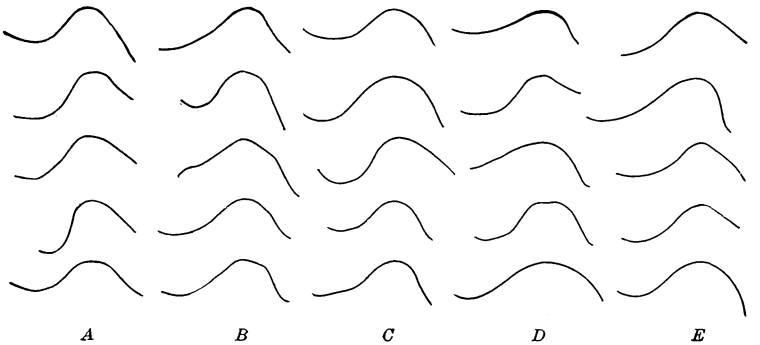


Fig. 2.

Fig. 2. Graphic outlines of the glenoid fossae, left side, after Tomes and Dollimore.

terference. In other words, there is co-ordination of movement between the condyles in their paths, and the lower against the upper teeth in their paths, thus enabling the full amount of masticatory effort to be expended in work, with no disturbance or incoordination.

Eliminating the cusps, the upper teeth represent a section of a convex sphere, and the lower a section of a concave sphere of corresponding size. The centre of this occlusal sphere varies, being located at a distance ranging from five inches above the occlusal planes, to infinity. (Fig. 3.) The centre from which the occlusal planes are developed is also the centre of the curved line in the condyle path along which the condyle moves in active masticatory effort. (Fig. 4.) This necessarily establishes a coincident or parallel relationship be-

tween these two sliding contact points of the machine, and results in coordinate action. (Fig. 5.)

This is Nature's method as displayed in the normal human masticatory apparatus, and in studying it, Bonwill conceived and devel-

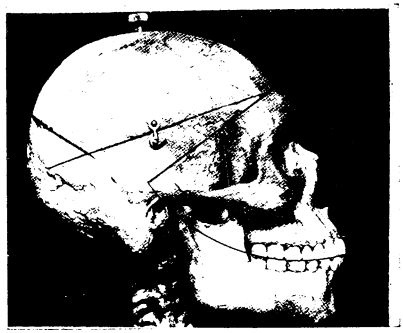


Fig. 3.

Fig. 3. Parallel relationship of the compensating curve and the condyle path.

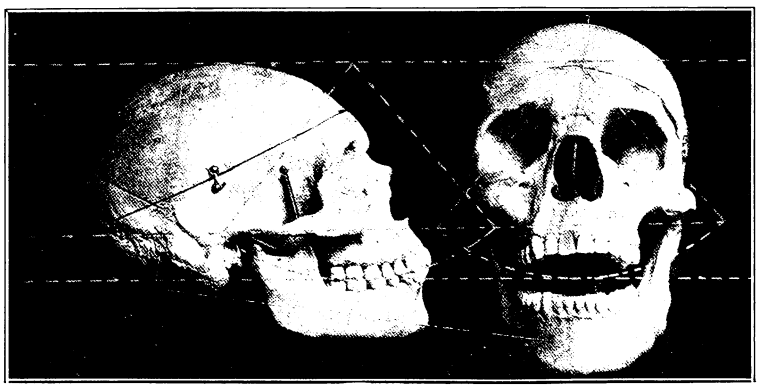


Fig. 4.

Fig. 4. Side and front view of the same skull, showing the spherical arrangement of the teeth.

oped the system of constructing artificial dentures, which bears his name. His efforts, while of inestimable value, were not far reaching enough to cover the entire field. The system developed by him had no provision for registering the variations in the condyle paths previously alluded to, and no means for correctly mounting models on the occluding frame; and while dentures constructed by his system

were occasionally entirely satisfactory, in many cases lateral movements were not possible because of incoordinate action between the occlusal planes of the teeth and the condyle paths.

The efforts of Bowdich and Luce in 1889, and Walker in 1894, to determine more exactly the true condylar movements, have since proven to be essentially correct, although at the time but little practical use was made of their findings.

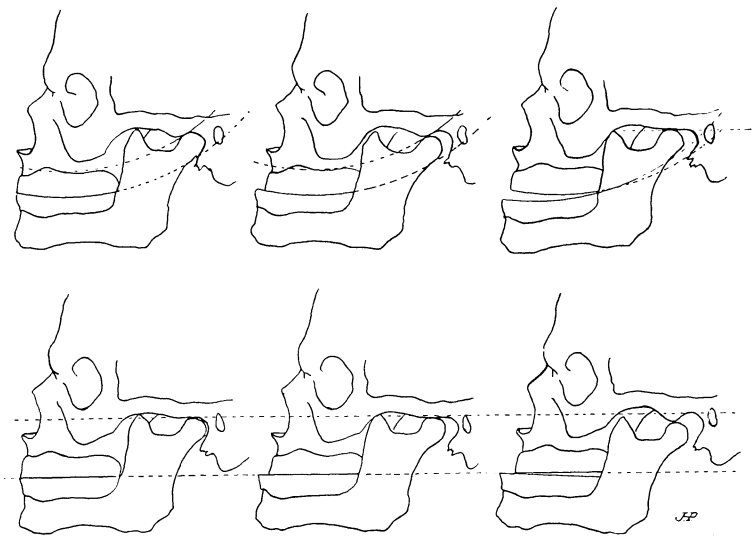


Fig. 5.

Fig. 5. Diagrams illustrating coordinate and incoordinate action resulting from a parallel or divergent relation between the condyle paths and planes of occlusion of the base-plates.

For a number of years following the research work mentioned, there still remained three prominent breaks in the chain of technical steps to be worked out and logically connected in order to render the system of practical utility. These were:

First.—Some simple means of determining the angular inclination of the condyle paths in each individual patient. Christensen and Gysi have each devised practical methods for accomplishing this, differing somewhat in detail, but arriving at essentially the same results.

Second.—An occluding frame, or articulator, capable of reproducing the masticatory movements of each patient as indicated by their condyle register. Walker, Kerr, Snow, Christensen and Gysi have devised appliances capable of imitating with a greater or lesser degree of accuracy, the mandibular movements.

Third.—Some means for correctly mounting models on the occluding frame so that their alveolar planes will bear the same relation to the hinges, or rotation points, that the natural planes sustain to the condyles. The "face bow" designed by Snow and the "condyle register" designed by Gysi are well adapted for carrying out the last step mentioned.

Thus the system has been improved and broadened, and while not absolutely perfect, it is practical and inconceivably better than the old, or even the Bonwill method.

To present this subject briefly and clearly, the principal procedures in their logical order will be outlined, and as seems necessary, some of the more important steps will be enlarged upon.

Since in edentulous mouths the only guiding factors of the masticatory mechanism remaining are the condyle paths, a description of the steps followed in the construction of a full upper and lower denture will be most appropriate.

Impressions.

When properly manipulated, a good quality of modeling compound will yield a more accurate impression than plaster. The use of this material is contra-indicated in cases of flabby ridges; when natural teeth are present; or where undercuts exist; in all of which plaster is indicated.

Place softened compound in a suitable tray and take as accurate an impression as possible. Remove from mouth, chill thoroughly and trim off excessive surplus. Invert over a small alcohol or Bunsen flame and reheat impressed surfaces to the depth of 1 to 2 m.m. Dip the impression quickly in warm water to prevent compound from sticking to tissues, and return to mouth. Press strongly and steadily on the tray for three or four minutes. Sometimes the process of chilling and reheating, as described, is repeated a second time, decidedly beneficial results being noticeable each time in the greater effort required to dislodge the impression. The heavy continued pressure forces the thin layer of softened compound away from hard to soft areas, thereby insuring a more uniform bearing of the denture on the tissues. When finally chilled the central palatine portion of the impression should be slightly scraped, not to form a vacuum chamber, but to relieve the pressure of the denture on the hard area so commonly present in this location. Usually the surface scraped should extend slightly beyond the hard area and in depth should not exceed one-half m.m., the margins tapering away to an indefinite outline.

Models.

The inherent tendency of all varieties of plaster is to expand in setting. When confined by the sides of the impression and tray, warpage of the model results, the palatine portion of the latter rising to a slight extent. To obviate this difficulty remove the impression as soon as possible after the plaster constituting the model has set. This can usually be done in from ten to fifteen minutes after filling the impression. Although this method obviates warpage, it does not control expansion which goes on for twenty-four hours or more. The expansion is compensated for by scraping a shallow, rounded groove

Fig. 6.

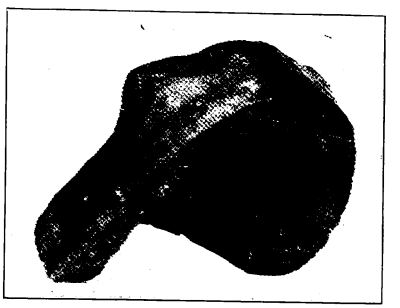


Fig. 7.

Fig. 6 and Fig. 7. Base-plates on which rims of wax are built to represent the length of teeth and border lost by absorption.

around the labial and buccal periphery, and a sloping but definite groove across the distal palatine portion of the model at the point where the distal margin of the denture will terminate.

Models should be of sufficient thickness to withstand stress exerted in closing the packed flask, usually not less than 8 m.m. thick in their thinnest part.

Construction of Base-plates.

In constructing dentures with metal bases, the latter should be swaged and fitted in the mouth and trimmed to correct peripheral outline. In vulcanite work, base-plates of some rigid, unyielding material should be conformed to the models and trimmed to correct form. "Ideal baseplate" is the best for this purpose because it is capable of withstanding stress and will not soften under oral temperature. It is supplied in two thicknesses, the thicker being preferable for general work.

The model is set face upward on the bench, a sheet of "Ideal baseplate" evenly adjusted over it, and heat applied, using the soft brush

flame of the blow-pipe. When it begins to soften and settle down it can readily be conformed with the fingers, being careful not to use undue pressure, as this would thin and weaken it in places. Overheating should also be avoided as it will adhere to the model when very soft. The peripheral surplus is removed with a hot, sharp-pointed spatula, using it as a knife, and the margins smoothed down with a medium coarse file. In vulcanite work, the base-plates are frequently vulcanized first, the teeth being afterwards attached in the usual manner. This method is productive of excellent results as the base-plates retain their position better, and will not break in the subsequent steps of fitting in the mouth.

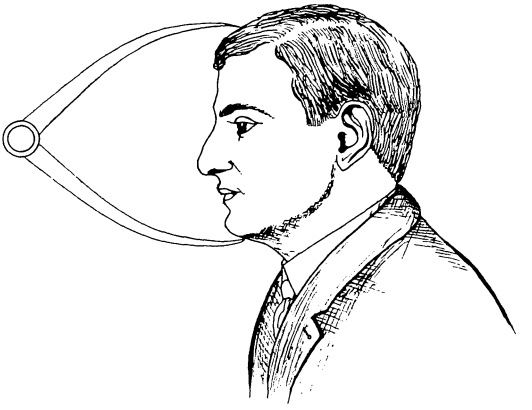


Fig. 8.

Fig. 8. Theoretical method of establishing the correct facial profile.

Constructing the Bite-plates.

On the base-plates, of whatever character used, rims of wax should be built to represent approximately the length and position of the natural teeth and such restoration of the alveolar process, lost by absorption, as may be necessary. (Fig. 6.) The rims should be about 8 or 10 m.m. wide and constructed with flat planes from before backward, as well as from side to side. (Fig. 7.) The wax of which they are formed should be of a hard variety, thoroughly united and firmly attached to the base-plates with a heated spatula.

Introduction of Base-plates in the Mouth.

A number of important details are to be carried out in fitting base-plates in the mouth; the order of carrying them out can be varied somewhat, but the following plan is a convenient and logical one.

First, establish the correct length of the upper, and height of lower wax rims. By way of illustration, suppose a patient has a full complement of natural teeth, and with these in normal occlusion, the distance between the mentum and some point on the cranium (Fig. 8), which could afterward be located, be recorded, say 8 inches. After a time the patient returns for dentures, having lost the teeth in one or both arches. The rims of wax on the bite-plates should be of such length as to place the mandible in its former position and the calipers, if again applied, should record the same measurement (8 inches) as before. This would result in restoring normal facial profile.

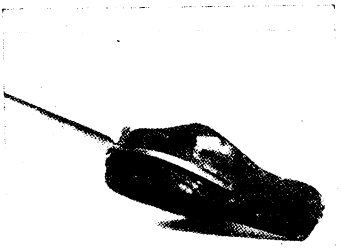


Fig. 9.

Fig. 9. Bite stem inserted in upper wax rim.

Since, for obvious reasons, it is not practical to follow out this plan as outlined, the facial profile is determined by observing the position of the lips as they rest against the base-plates. The upper bite rim should usually extend about 1 m.m. below the upper lip when the latter is in a normal state of rest. The lower rim should be of such length that when in contact with the upper, the lower lip may come to its normal position of rest against the upper lip without requiring muscular effort to effect closure. Too short a rim will result in the lips being pursed out, and the perpendicular profile of the whole face abnormally shortened, while on the other hand if the rim be too long, reverse conditions will prevail.

In addition to the details outlined, restoring the general convexity of the face should be carefully worked out. The cuspid eminences should be developed sufficiently to partially, but seldom ever wholly, obliterate the depression extending from the alæ of the nose out over the angles of the mouth. The faces of adults, possessed of their full complement of natural teeth, almost without exception, present a depression in this situation, and sometimes a positive wrinkle is shown, so that to attempt to obliterate the depression entirely will usually result in deforming the features. Proper care bestowed in contouring the wax rims obviates changes and consequent loss of time in subsequent steps, since the contour developed in the wax determines the position of teeth

in their respective arches. The high and low lip lines should be marked on the rims to indicate the correct length of teeth appropriate to the case, so that neither too much porcelain nor too broad an expanse of gum will show when the finished denture is introduced in the mouth.

The various steps just described, and the taking of the bite which is to follow, precede the application of the face bow, but it is necessary at this time to carry out two steps that are essential to the proper adjustment of the bow. The first step is to remove the upper bite-plate, and after heating the crescent-shaped end of the face bow stem, force it into the wax rim sufficiently deep to secure the two firmly together (Fig. 9). The stem is now removed, as its presence would tend to dislodge the base plate, while taking the bite, and the upper bite plate is returned to position in the mouth.

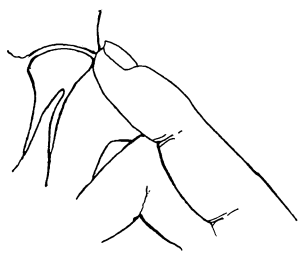


Fig. 10.

Fig. 10. Placing the ball of the finger on the glenoid rim and end of the condyle.

The other step consists in locating the condyle ends, and since this can only be accomplished by noting the movements of the condyles, it must be done before stapling the base-plates together. The condyle ends are usually about 12 m.m. in front of the external auditory meatus, and on a horizontal plane with it. The situation varies slightly, however, in different individuals. The ball of the finger is placed at the point indicated (Fig. 10), and the patient instructed to open and close the mandible slightly a number of times. The upper portion of the ball should rest on the immovable margin of the glenoid fossa, and with care the end of the condyle when in action will be found directly beneath. In some subjects the glenoid rim overhangs the condyle end, and the interposed integument and adipose tissue is so thickened as to render detection difficult. In such cases, considerable pressure exerted inward and downward, with repeated movements of the mandible, will result in the condyle ends being properly located.

The integument opposite the condyle ends should be dotted with a soft pencil so that later, in adjusting the face bow, their exact location may be found without delay.

Taking the Bite.

The most convenient and accurate method of taking the bite consists in instructing the patient to relax the muscles and allow the operator to open and close the mandible at will. The base-plates being in position, and the muscles relaxed, the chin is grasped with the fingers and the mandible opened and closed a number of times, slight pressure being exerted upward and backward to force the condyles into their fossæ. Under repeated manipulation the base-plates will strike in exactly the same place each time. When this is determined the patient is

Fig. 11.

Fig. 11. Bite-plates stapled together, attached to the bite stem as they appear when removed from the mouth.

Fig. 12.

Fig. 12. Adjusting the face bow. Tightening the bite clamp.

instructed to keep the jaw closed while the four pointed staples are forced into the wax rims to hold the base-plates in their true relationship with one another. (Fig. 11.)

Adjusting the Face Bow.

The stem of the face bow is now returned to the groove previously made for it in the upper wax rim and pressed firmly to place. Sometimes the wax is melted against it to more firmly secure it in place, and thus obviate the liability of distorting the relationship between the bite-plates and face bow during removal from the mouth.

The large central clamp of the face bow is now passed onto the stem, and the bow dropped down until the graduated rods are opposite the condyle ends, when they are pressed in until they rest firmly against the points previously dotted (Fig. 12). The bow should be evenly balanced, so that the same number of graduations show between the inner

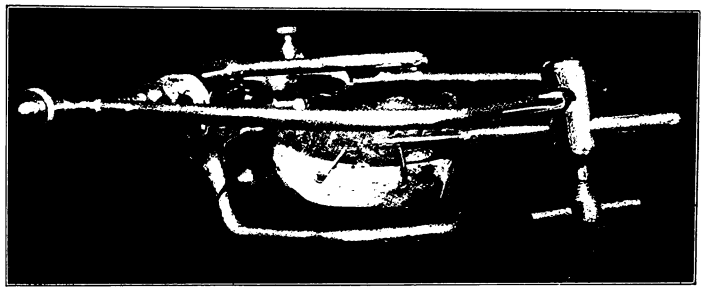


Fig. 13.

Fig. 13. Face bow carrying bite-plates adjusted to frame.

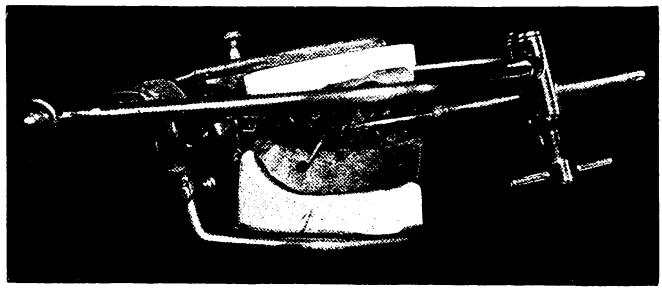


Fig. 14.

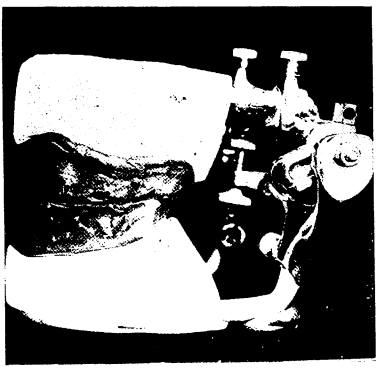
Fig. 14. Models adjusted in base-plates ready for mounting to frame.

side of each arm and the face. Unequal adjustment of the rods results in the models being thrown off the true median line when mounted on the frame. The clamp nuts on each rod are tightened firmly, after which the central clamp is fixed to the bite stem, which completely establishes the correct relationship between the alveolar borders and condyles. The side clamps are now loosened, and the patient instructed to open the mouth. By grasping the bite stem firmly, the base-plates are removed from the mouth, usually without difficulty.

Mounting Models on the Occluding Frame.

The graduated rods are next thrust in to their full extent and the clamps tightened. This brings them in correct position for engaging

with the projecting ends of the frame hinges to which they are now adjusted (Fig. 13), the bite-plates being between the upper and lower bows of the frame. The upper bow is thrown back, the upper model placed in its base-plate and firmly seated, the bow dropped down upon it, and plaster applied in the usual manner for attaching the



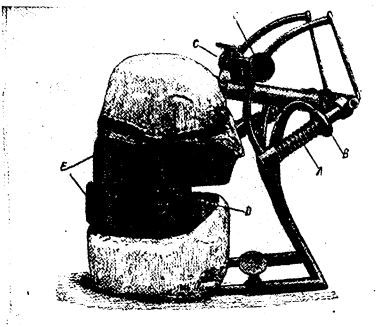
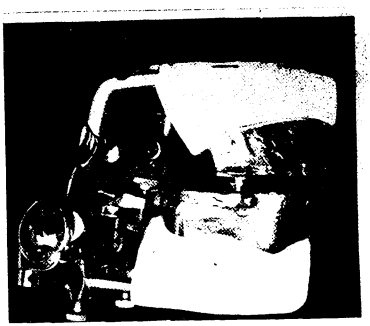
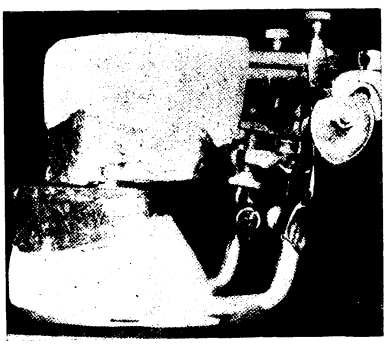


Fig. 15. Models attached and face bow removed.
Fig. 16. Christensen's method of registering the condyle path.





Figs. 17 and 18. Substituting the Snow bite gauges for the rolls of wax.

two together. When set, the frame is inverted and the lower model attached in a similar manner (Fig. 14), after which the face bow and stem are removed (Fig. 15). This completes the mounting of the models on the occluding frame.

Recording the Condyle Path.

The case is now ready for recording the condyle path and setting the condyle paths of the frame to correspond with those of the patient.

The Christensen method of carrying out this step consists in re-

turning the base-plates to the mouth and taking a *protrusive bite, i.e.,* having the patient protrude the lower jaw and close in the protruded position. (Fig. 16.)

Previous to closing the mouth as just designated, rolls of wax are placed between the rims on both sides in the first molar region, and as

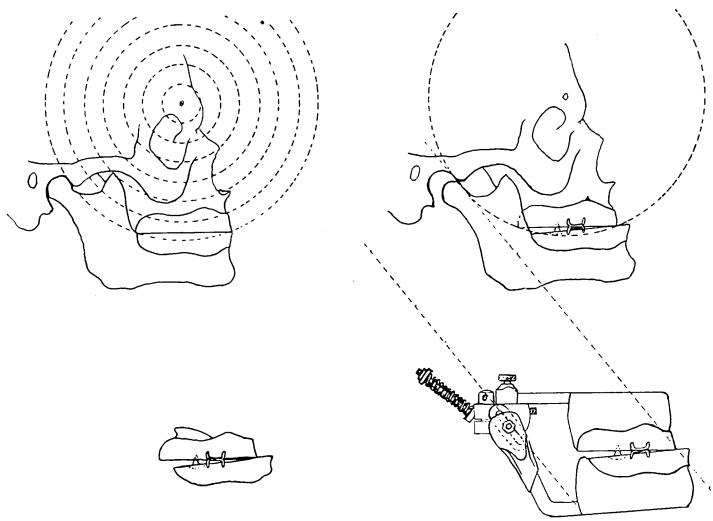


Fig. 19.

Fig. 19. Scheme illustrating the relationship of the base-plates in their normal and protruded positions, the removal of the base-plates from the mouth and their return to the models. Note the parallel relation between the condyle path in the upper right figure and the condyle slots of the frame.

the patient closes the interposed wax forces each base-plate firmly against its border and maintains the space outline formed between the distal portions of the base-plates, due to the dropping downward of the condyle in its path. The base-plates anteriorly should be in contact, the lower one being protruded. This relationship is securely maintained by applying the four-pointed staples previously mentioned. The Snow bite gauges are now generally used instead of the rolls of wax, as they prevent the tendency of the base-plates to slide out of correct relation in removal from the mouth. (Figs. 17 and 18.) The clamps controlling the condyle paths of the frame are loosened, and the back spring unhooked, which gives the models a wide range of movement.

The base-plates, still in their protruded relation and firmly attached together, are now carried to place, the lower one being accurately adjusted to its model. The upper model is now moved backward and gently, but firmly, seated in its base-plate. If the slots of the frame are

observed during this step, they will be seen to assume various positions, but as the upper model comes to rest in its base-plate, the slots or paths will take the same angular inclination that the condyle heads traverse in producing the protrusive bite. (Fig. 19.)

The clamp nuts controlling the condyle slots are now tightened, the staples and bite gauges removed, and the back spring again connected,

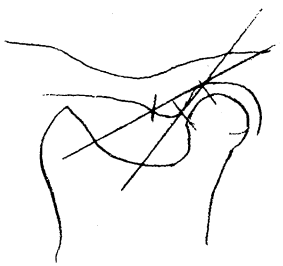


Fig. 20.

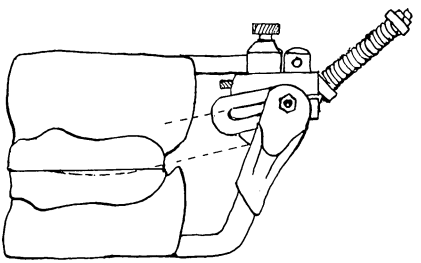


Fig. 21.

Fig. 20. Diagram showing two possible condyle registrations in the same individual, the less inclined and longer one being produced by an excessive protrusion, and consequently is incorrect. The steeper path represents more nearly the limit of travel of the condyle head in normal masticatory effort, and is obtained by having the patient protrude the mandible about 5 m.m. in taking the protrusive bite.

Fig. 21. Shows curve marked on lower wax, afterwards to be sliced off.

which brings the models in the same relation to each other as when first mounted, the only change effected by this step being to adjust the condyle paths to meet the requirements of that particular case.

Correcting the Wax Planes so as to Coordinate with Condyle Movements.

Since the condyle path is a fixed quantity, and establishes a definite line of movement in the human masticatory machine, and since the wax rims serve as guides in arranging the teeth—not only labially and buccally, but occlusally as well—it is necessary now to modify the flat wax bite planes to coordinate with the line of movement of the condyles in their paths. This is done by outlining on the buccal surfaces of the lower wax rim a curve running from about the position the cuspid will occupy to the distal ends of the rims. (Figs. 20 and 21.)

The curve should be so formed that if extended backward it will be coincident or parallel with the condyle path of the frame, as the conditions of the case demand. The curve having been outlined, a sharp knife is used to slice off the wax along the line indicated. (Fig. 21.) It

should be sliced off with a single cut, if possible, and transferred to the upper base-plate directly opposite, and there attached with a hot spatula. The spherical form of the upper and lower arches should be borne in mind, and the curve developed—not only from before backward as described, but from side to side as well. Both sides having been treated in this manner, the correctness of the work is tested by subjecting the rims to the protrusive and lateral frame movements. This will disclose any existing errors, and, if present, they can easily be corrected by trimming,

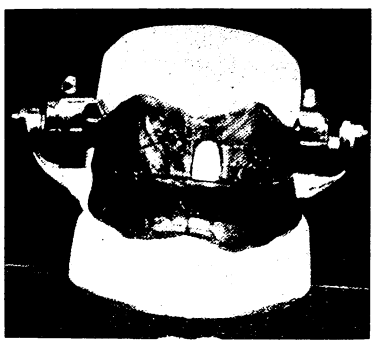


Fig. 22.

Fig. 23.

Figs. 22 and 23. Labial and incisal view of the first central incisor in position.

or additions of wax here and there, as may be needed. The base-plates when trimmed should maintain contact throughout their entire occlusal and incisal areas in both lateral and protrusive movements, and when so formed they serve as accurate incisal and occlusal guides in arranging the teeth. Pulverized soapstone applied to the contact surfaces of the rims is a decided help in the final trimming and adjusting, as it prevents the two rims from sticking together, and enables the various movements to be carried out with ease.

Arranging the Teeth.

The teeth are arranged on the upper base-plate first. A space of sufficient length, width, and depth to receive a central incisor is formed by removing the wax, and the tooth placed in position (Figs. 22 and 23), its incisal edge and labial contour coinciding with these surfaces of the wax rim. The wax is then melted around the pins to hold it in position. Another section of wax is then removed and another tooth placed in position, the tooth last set and the undisturbed wax rim serving as guides in its arrangement. Each tooth is adjusted in this manner until the entire fourteen are in position

The lower second bicuspid is set in position first (Fig. 24), because

less grinding will be required, and better occlusal areas can be secured by so doing than when the arrangement is begun at the median line. The molars and first bicuspids are then adjusted, then the cuspids, laterals and centrals are placed. Should the six anterior teeth be much too wide or too narrow to fill the space between the two first bicuspids, others should be selected. If only a slight disproportion exists, it may

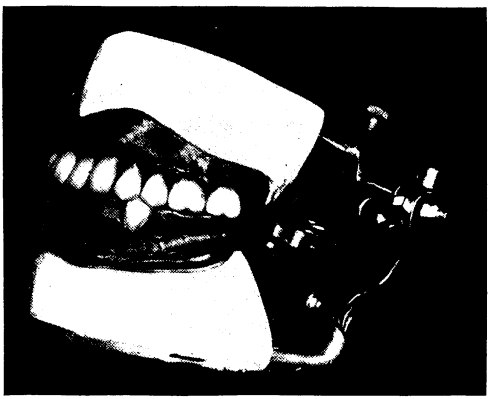


Fig. 24.

Fig. 24. Placing the first tooth in the lower arch.

be corrected by grinding the distal sides of the cuspids and the mesial sides of the first bicuspids of the teeth in one or the other of the arches, depending on the character of the disproportion.

As each tooth in the lower arch is set, the accuracy of its position and occlusal relations should be tested by subjecting it to lateral and protrusive movement.

Before beginning the arrangement of the teeth, the central grooves of all of the bicuspids and molars should be broadened buccally and lingually, and as a result in the general adjustment only slight modification will be necessary. Again, after the dentures are inserted in the mouth, by the use of carbon paper, the high points can be located and easily reduced, thereby clearing away the minute high points of contact not discernible to the eye. This procedure can be carried out to advantage in all cases of full upper and lower dentures, whether constructed by this or any other system. In other words, regrinding clears the paths of the cusps, so that the lateral movements can be accomplished more smoothly, and the occlusal surfaces of all of the bicuspids

and molars interlock more closely than they otherwise would were this process neglected.

The fact should be kept in mind that contact is desirable and necessary along the entire line of buccal and lingual marginal ridges of the bicuspids and molars on the working side of the mouth, while there

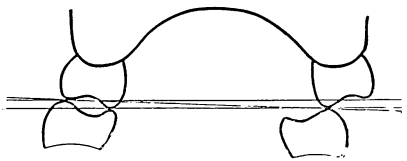


Fig. 25.

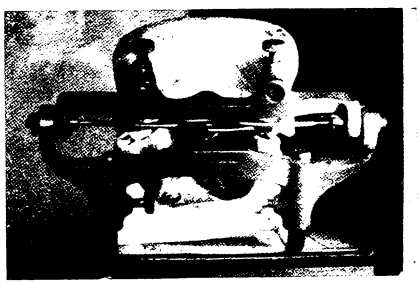


Fig. 26.

Figs. 25 and 26. Contact of the buccal and lingual marginal ridges of the teeth on the working side of the mouth. Right side shows balancing contact.

should be no contact from the cuspid on this side to the opposite second molar on the balancing side. There the disto-buccal cusp of the lower second molar should be so placed that it will find ready contact with the mesio-lingual cusp of the upper second molar, in order to establish balancing contact (Figs. 25 and 26; see also Figs. 27, 28, and 29). The plan followed by some, of arranging the teeth in all cases on a flat plane, and securing the balancing point by tipping the last molars slightly forward, while productive of good masticatory results, involves as much effort in arrangement, and in the opinion of the writer is frequently lacking in esthetic effects.

The Gysi Method of Registration.

Dr. Alfred Gysi has designed a registering device consisting of a bar, at right angles to which are attached two adjustable arms, each

carrying a pencil point. In adjusting the bar, which is attached to the lower bite-plate, the pencils are set opposite the condyle ends and rest against cards held in contact with the face.

In mandibular movements, the pencils record the exact path taken by the condyle in forward and protrusive movements. From the record

Fig. 27.

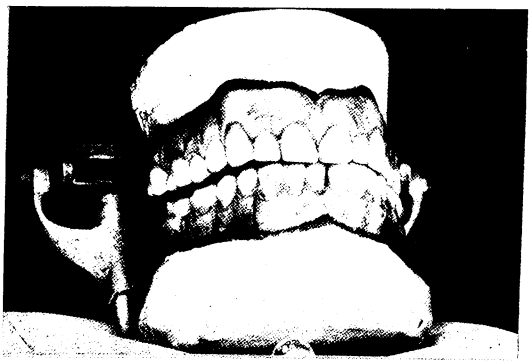


Fig. 28.

Figs. 27 and 28. Note the broken contact in both natural and artificial teeth on the balancing side of the mouth until the last molars above and below find contact on account of their occlusal surfaces being parallel with the line of movement of the condyles.

thus obtained, slotted templets corresponding to the condyle paths are selected and placed in the joints of the occluding frame, thus reproducing the essential movements necessary to establish co-ordination. The appliance can also be used as a face bow for mounting models correctly on the frame. The research work of Gysi, together with the improved appliances which he has produced, indicate substantial scientific

advancement in the field of prosthesis, and brings it nearer to that desirable stage of perfection, where the greatest beneficial results will follow remedial efforts in prosthetic procedures.

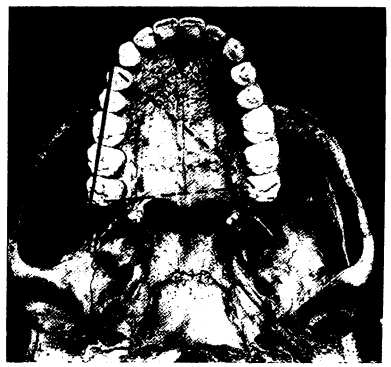


Fig. 29.

Fig. 29. Diagram illustrating what is meant by "three point contact." The black line of base of the triangle represents the working side of the mouth and on which there are many points of contact between the upper and lower bicuspids and molars, while the apex of the triangle represents the balancing point of contact.

Advantages of Anatomical Occlusion.

The value of the system of occluding teeth anatomically as followed at the present time, has been proven beyond question. In most cases patients for whom substitutes are constructed by this method are able to masticate efficiently on first trial, because by the very nature of their arrangement, the teeth glide in normal paths without interference, while the dentures as a whole sustain each other in normal position in masticatory effort, due to the development of the balancing points of contact, which prevent the tipping of the dentures. While it is true that more time is required, and possibly greater care exercised, in following the method outlined than is usually devoted to procedures of this class, on the other hand, much greater benefit accrues to the patient, and consequently a fee commensurate with the service rendered can be charged. In addition to the advantages mentioned, the fact that service rendered of the character described represents the highest type of scientific prosthetic art, and this should in itself be an incentive to every practitioner to familiarize himself with, and become proficient in, the methods under consideration.

Mal-Formed Bones of the Face As a Cause of Brain Inactivity.

By G. M. WRIGHT, M.D., Denver, Colo.

Read before the American Society of Orthodontists at Denver, Colo.

In this consideration of brain inactivity, it will be my purpose to study the changes taking place within the cranium, which are a direct cause of aprosexia, and to show *why* and *how* malformations, which interfere with the normal performance of the physiological functions of the accessory sinuses of the nose, together with an interference with the lymphatic circulation within the nasal fossæ, are directly responsible for such intercranial conditions.

We have believed up to the last few years that the mental lethargy attendant upon nasal obstruction is due to the want of oxygen in the blood. This explanation, which I believe to be erroneous, we have accepted because of a lack of knowledge, both as to anatomical construction and physiological functions of the nose and accessory sinuses.

A true explanation of the mental condition following nasal obstruction, I believe, will be found in the interference with two important physiological functions; namely, the lymphatic and venous circulation of the nose and accessory sinuses, so intimately connected with that of the base of the brain.

Physiologists agree that a moderate pressure on the brain, *i. e.*, not enough to cause vertigo, loss of consciousness, etc., may produce disturbances of the nutrition of the brain with consecutive phenomena, such as slight headaches, feeling of dullness, muscular weakness, etc., so that if we can prove that such malformations as deflected septums, enlarged turbinates, high dental arches that allow the roof of the mouth to usurp territory which should belong to the nasal fossæ, retard the lymphatic and venous

circulation within the nose and sinuses, and that this circulation is so intimately connected with that of the base of the brain that it, *per se,* must also be affected and cause pressure, we will, in a great measure, have explained the reason for brain inactivity in these cases. To this end, let us study the anatomy of these parts and their relation to cerebral circulation.

Anatomy of Sinuses.

Anatomists have known for hundreds of years of the existence of the pneumatic spaces. It is interesting to review the works of the early anatomists: Tallopius, 1542; Bartholini, 1655; Willis, 1664; Eustachius, 1717; Vasalius, 1725; Winslow, 1732; Morganii, 1779; Bechat, 1819, and Cruveilhier, whom Gray quotes so extensively, and note the descriptions given of, and reasons advanced for the existence of these pneumatic spaces. (Here I wish to take occasion to thank Dr. S. W. Hartt, of this city, for his kindness in allowing me access to his anatomical library, which I believe to be one of the most complete in America.)

Later anatomists seem to have been content to accept the belief that the pneumatic spaces are of but little importance, and follow the description of those who had gone before, so that it was during the last century that we got our first accurate description of all these spaces, and their communication with the nose.

In as estimable a work as Daniel Eisendrath's *Clinical Anatomy,* edition of 1903, page 93, we read under "Internal Nose": "It has openings in its lateral walls into the pneumatic cavities, or accessory sinuses, situated in the bones of the face and skull. The exact function of these accessory sinuses is not clear. In their development, they probably aid through giving the facial bones an opportunity to grow without increasing their bulk." This seems to have been the most prevalent excuse given for nature having created these spaces.

Ambrose Paré, in his work on surgery, states that penetrating wounds of the forehead in which bubbles of air come through when the patient holds his nose and blows, stand a much better chance of recovery than others.

Sinus Respiration.

It seems as though physiologists should have given more thought to sinus respiration than they have, when we take into consideration the numerous instances of foreign substances which have been breathed up into the frontal sinus, thereby calling attention to the fact that air was drawn up in the sinus.

Foreign bodies enter the frontal sinus through the natural channel. (*Reference Hand-book of the Medical Sciences,* Vol. 3, page 260.) A notable instance is recorded by Gross of a child who lost its life from

irritation caused by the development in the frontal sinus of an immense number of spiders, the parent of which had been inhaled while the child was smelling a flower. The ova of insects are inhaled directly into the sinuses from fruit and flowers, upon which they have been deposited. This is said to occur particularly in India, and the disease thus set up is called "Peenash." Such instances should prove that there is a sinus respiration, and investigation will show that it has an important physiological function.

Anatomists claim that the majority of adults have deviated septums. Zuckenkandl found 240 in examining 370 people, and McClellan, in his *Regional Anatomy*, edition 1901, says of the frontal sinus: "They are usually unsymmetrical, the larger being on the side from which the nasal septum is bent," which I would construe as proof that it is necessary that the formation be such as to make it possible for a free column of air, not unduly obstructed, to enter the sinus, in order to allow them to make a normal development.

Venous System of the Sinuses.

Before going into the physiology of sinus respiration, that we may be in a position to more clearly appreciate the importance of its relation to the venous circulation of the brain, let us review the anatomy of the emissary veins connecting these sinuses and the posterior pharynx with the basilar venous circulation. Anatomists not long ago were quite united in claiming that the *foramen caecum* closed at birth. The *Reference Hand-book of the Medical Sciences*, Vol. 3, page 243, says: "The *foramen caecum* in foetal life furnishes a communication between the longitudinal sinus and the veins of the frontal sinus, ethmoidal bone and nose, rarely, if ever, observed in the adult;" while McClellan's edition of 1901 says: "A connection exists more often than is supposed between the veins of the nasal fossæ and the front part of the longitudinal sinus through the *foramen caecum*, which in such cases is not closed." Again, on page 115, he says: "In children, there is almost always a communication between the nasal veins and the superior longitudinal sinus through the *foramen caecum*. This is usually closed about puberty, but may continue in the adult."

Cunningham's anatomy, edition 1906, says: "The superior longitudinal sinus commences in the anterior fossæ of the cranium at the *crista galli*, where it communicates through the *foramen caecum* with the veins of the nasal cavity, or with the angular veins." Again, of the emissary veins, Cunningham says: "The cavernous sinus communicated with the pterygoid plexus in the zygomatic fossæ by an emissary vein, which passes either through the *foramen ovale* or through the *foramen vesalii*."

Morris's Anatomy, edition of 1907, says: "The cranial blood sinuses are continuous on the one hand, with the meningeal veins, and on the

other hand, with the veins outside the cranial wall. The vessels which establish communication between the blood and sinuses and the extra cranial veins, are referred to collectively as emissary veins. They possibly help maintain the regularity of the cranial circulation, and they have, therefore, a certain amount of practical importance."

This is the first instance I have found of an anatomist calling attention to the importance of the emissary veins, because of their influence on cranial circulation. We have, then, supplying these parts, an emissary vein passing from the superior sagittal sinus through the *foramen caecum,* and communicating with the veins of the roof of the nose, or through the nasal bones with the angular veins; other emissary veins pass from the pharyngeal plexus, supplying the posterior pharynx through the *foramen ovale* or the *foramen vesalii* to the cavernous plexus, and the anterior and posterior ethmoidal veins have direct communication with the veins at the base of the brain through the cavernous plexus.

Influence of Sinus Respiration.

Let us see, then, the influence of sinus respiration on these thin walled extra- and intra-cranial veins. We know that the column of air which, during apnea, is under the same pressure as that of the atmosphere, has a negative pressure when forced from the trachea upward, and makes room for external air to rush in and take its place.

This change of air pressure must affect the air within the accessory sinuses, and in these, as well as the nose, a change of pressure is observed during expiration. It is at this moment that the sinuses assume a physiological importance.

During inspiration, the air is drawn out of the sinuses and a negative pressure (less the atmospheric) is produced, therefore emptying the ethmoidal and other emissary veins, at every inspiration, through this pump action of the pressure and release of pressure on these veins, and through them the longitudinal sinus and cavernous plexus. When the nose becomes so obstructed by malformations that air does not pass through it, this mechanism is interfered with, and venous hyperemia of the meninges is produced, forming an important factor in the aprosexia of these cases.

Lymphatics.

Leaving the venous circulation and considering the lymphatic, the same causes that produce the venous stasis will produce lymphatic stagnation. It has been recently shown by Ceuno and Andri that the peri-meningeal spaces communicate with the lymphatics of the nasal fossæ across the cribriform plate of the ethmoid by canals, which are independent of those for the sheaths of the olfactory nerve.

This intimate relation between the lymphatics of the nose and base of the brain we now believe explains the meningitis met with in scarlet

fever and congenital syphilis, as well as tubercular meningitis from direct infection. Strauss has found Koch's bacillus in the nasal cavities of children dying from tubercular meningitis.

Tilly says that, "direct communication between the lymphatics of the olfactory region and the basal lymphatics of the *dura mater* has been demonstrated beyond a doubt." So it is certainly not an unreasonable theory, that the interference with the lymphatic circulation in the nasal fossæ, so closely connected with that of the base of the brain, plays a very important part in the stagnation of the meningeal lymph circulation, and, consequent brain inactivity.

Grunwall says: "This vacant stare found in these cases corresponds perfectly with the psychic abnormality, and is due in the brain to stagnation of lymph at the base of the skull, which always accompanies nasal obstruction." This lymphatic stagnation, then, we must admit, plays an important part in this sequella of nasal obstruction, and as we gain a more thorough understanding of the physiological relation of the venous and lymphatic circulation of the nose and accessory sinuses and their relation to that of the brain, I believe we will get to more thoroughly understand the pathologic phenomena producing the marked mental lethargy in these cases.

Discussion of Dr. Wright's Paper.

Dr. Bogue. Mr. President and Gentlemen: I looked for all the little defects I could find in this paper on the train, and was strongly reminded of two priests in Sunday-school, one of whom asked his little pupil if she knew about the sacrament of matrimony. She thought she did. He asked her to describe it. She said it was "a condition in which souls suffer for a time to prepare them for a better state." One priest said, "Do not say that." The other priest said, "Let her alone, brother, she may be right for all you and I know." I do not feel willing to take issue with Dr. Wright in his assumption of brain inactivity in the first part of his paper, because, as the priest says, "He may be right for all you and I know," but I want to learn if he intended to include the palate bones among the bones of the face, for he speaks of the changes taking place in the bones of the cranium. If he includes the bones of the palate, I should question the correctness of his assumption. A cleft palate patient I had a few years ago was sufficiently active in brain to found two newspapers in New York City, one of which *The Mail,* still survives.

Two or three minutes ago Dr. Wright brought up this sentence, "All

large frontal sinuses being on the side from which the nasal septum is bent." There is another instance where, as stated yesterday, the cart is before the horse. The frontal sinuses to which Dr. Cryer is constantly calling attention varies in size, to be sure, and the fact exists that the larger frontal sinus is on the side from which the nasal septum is bent, but how did it become bent? That is the point, and Dr. Wright has hit that point. It is from disuse, as Dr. Baker has been trying to learn along a little different line.

The knowledge we have on this subject of brain inactivity is necessarily limited, and nearly all empirical, but we have a large number of contributory facts going to show the correctness of the reasoning that connects defective bones of the face and head with brain inactivity or brain perversion. The most recent investigation shows the growth of bone largely dependent on the functional activity of the muscles having their insertion in the bones. I allude to Dr. Baker's experiments on the two rabbits, and quote it: His two rabbits had the teeth from one side ground down so that mastication on that side was impossible: function on that side was not fulfilled. These conditions were maintained seven months, and then the whole litter was killed, and the skulls cleaned for examination. The two mutilated ones were found to have the mandible much smaller on the mutilated side, causing deflection to that side. These deflections were shared by the upper maxillary and nasal passages as well, which were both smaller on the mutilated side than on the other, causing necessarily from that smallness curvature of the nasal septum: a mechanical matter. This diminution of size continued right on up to the skull, the mesial suture of which was deflected toward the right side, and the whole brain cavity on that side was visibly smaller than on the other side. The weight of these two skulls was less than that of the other skulls belonging to the same litter, which proves the necessity of the performance of function during the period of growth, and the inevitable deformity resulting when this function is interfered with or suspended. Dr. Baker also reports that this variation was not confined entirely to the bones of the head, "but the bones of the thorax were distorted: the bones of the sternum deviated, ribs twisted, and there was a spinal curvature in the dorsal region."

"This experiment strongly indicated how important is the masticatory equipment of man to the development of the head, and it also brings fresh illustration of the importance of the sadly neglected temporary dentition, which serves during the important developmental period of childhood."

In advocating "pap," Dr. Holt, it seems to me, with all due respect to him, has done a tremendous injury to the rising generation. I will draw attention to a case not far away from Dr. Wright's subject. A girl

of four years, the daughter of a surgeon, was brought to me straight from Dr. Holt's office. The child had pyorrhea about her temporary teeth to an extent which I have never seen equalled before or since. The gums bled at the slightest touch, and the child could not chew; the whole condition was lamentable. Plenty of pus was present.

Dr. Fisher. I would like a little more of the history of that case, if the chair will allow.

Dr. Bogue. I will speak of it as fully as I may be allowed. I said to the mother, "I will treat that little girl, but I want you to put her on the track of masticating her food." "But she cannot," the mother replied. "But she must. Then give her the bones and let her pick the meat off the bones with her teeth." "Horrible!" "Well, you may say 'horrible' if you like, but that is what I want you to do, and I want you to give her gum to chew." "That is still more horrible." "Never mind, please do what I want you to do. The child is only four years of age and is not in society." I cleansed the teeth from tartar, applied iodine (an aqueous solution) and sulphate of zinc a good deal stronger than Dr. Ferris will advise; I then put little brushes in my engine and scrubbed the teeth with pumice stone, and allowed the pressure to come against the gums pretty liberally. The child did not complain. The child began her chops and her gum. I saw her two weeks ago, and a more perfect set of teeth in position, and a more perfect set of gums, I do not want to see.

Dr. Ottolengui. How old is she now?

Dr. Bogue. Thirteen or fourteen now. The child has been made to masticate from that day to this.

Dr. Fisher. When did the pyorrhea disappear?

Dr. Bogue. After four or five days.

Dr. Fisher. All discharge gone in four or five days?

Dr. Bogue. Don't you see I removed the cause of the pus, cleansed away the tartar, shrunk the gums down, and by the brushing the child lost all her fear of the work, and from the moment the teeth were clean and gums shrunk down, they stayed there.

Dr. Fisher. Was the alveolus involved?

Dr. Bogue. It was not.

Dr. Fisher. It could not be pyorrhea unless the alveolus was involved.

Dr. Bogue. Pardon me. All of us have to learn a little something. The name "pyorrhea alveolaris" is Latin, and simply means flow of pus from the alveolus, just as gonorrhoea means another flow of pus.

If there is malformation of any of the bones of the face, that is in itself fair evidence that the function of that part is not being properly performed. If any bone is malformed enough to attract the attention of its possessor, he fails to pay undivided attention to the things around him, and so is less active than those around him. The malformation may be of the nose, or of the eustachian tube, or of the dental arches, and in all cases where the deformity is great enough to cause physical discomfort, the result is that the attention of the individual is more or less distracted, and his normal development interfered with.

Rev. Dr. Travis, Ph.D., has spent several years investigating criminals and insane, and studying the works of Lombroso and Ferri, the famous Italian criminologists, and his conclusions are summed up as follows: "1. Any defect which occurs to the breathing organs of a child would tend to delay development. 2. If acute, and in the nose, it would tend to develop mouth breathing, with its bad results on mind and body. 3. If this defect occurred at the critical age, with regard to speech imitation, etc., it would delay these, and therefore make the child backward. 4. If later, at first school age, it would handicap learning, and perhaps make study irksome, and tend to make natural exercise, as running, etc., irksome, and therefore might have serious results, not only on mental and physical development, but also on moral, by making the boy appear dull, thereby losing the respect of bright children, and falling below his grade. It would tend to truancy, and this is one of the broad roads to criminality. A sluggish and poorly developed body tends to bar him from games, and therefore from the respect of boys who exercise their athletic powers. This, therefore, cuts him out of their normal circles and puts him with the street gang."

E. Ferri, in *Criminal Sociology* (page 8), writes: "Among murderers and thieves an incontestable inferiority has been noted in the shape of the head." This may be because the upper maxillary is not necessarily a facial bone, but because the two bones have been spread apart by the mandibular action in utero.

Drs. Kingsley and Talbot have made many researches into the mental effects of cleft palate, but they do not seem to have found that that particular defect is necessarily characterized by mental inactivity. I have myself met perhaps a dozen or more cleft palate cases, from ten years old upward, but they did not any of them impress me as being below the average in brain activity.

Almost all the crania examined are more or less abnormal, and one has but to notice carefully the illustrations of Cryer's Anatomy, which is nearly all original work done by Dr. Cryer, to see evidences of abnormality, and generally those evidences point toward a diminution in the

width of the mouth, and even a seeming change in the position of the pneumatic spaces.

Dr. Wright also seems not content to copy the statements of the later anatomists, nor to accept the belief that the pneumatic spaces are not of any importance. I have had clinical experience in examining many children of not more than ten years of age, and can safely assert that an evident diminution in the size of these sinuses is always an evidence of serious functional derangement, either in the immediate vicinity of the nose and face, or in the more important organs, the heart and lungs.

Dr. Wright says anatomists claim that the majority of adults have deviated nasal septa, and I venture to add a little to that testimony. I spent five days in examining skulls in the Smithsonian Institution in Washington, and found only two septa which merited being called straight, and Dr. Herdlicka, the Curator, said he had not found any he could really call straight; and that has a distinct bearing, all the more from the fact that the majority of those skulls were of aborigines. Dr. Wright then calls attention to the 1907 edition of Morris's Anatomy, in which the positions of the cranial blood sinuses, continuous on the one hand with the meningeal veins, and on the other with the veins outside the cranial wall, are alluded to as emissary veins. The doctor points out the changes in air pressure taking place with each respiration. I think we owe an acknowledgment to Dr. Wright for calling our attention to these points, for it has been noted for ten or twelve years, or more, that whatever interferes with the physiological equilibrium interferes with the well-being of the individual concerned. While acknowledging my inability to discuss this matter from the standpoint of independent knowledge of the subject, I feel like saying to Dr. Wright, "I accept your views and acknowledge the correctness of your conclusions: I always knew it, but never thought of it before!" I have not known the anatomical fact shown by Ceuno and Andri that the peri-meningeal spaces communicate with the lymphatics of the nasal fossæ across the cribriform plate of the ethmoid. I am glad of an explanation of the meningitis following upon, or coexistent with, scarlet fever, which is given to us by pointing out the intimate relation between the lymphatics of the nasal fossæ and the base of the brain.

Dr. Baker. I talked so much yesterday about use and disuse, that if I am not careful I will say too much to-day. I just want to go over a little of what I pointed out yesterday, with reference to the muscular development, as I said little about the development of the muscles. Here we have a skull (indicating with a skull), and note at the base of the brain all of these eminences and processes. All of those processes are for a purpose. They are for the

attachment of strong muscles, and they go up to the very base of the brain, and I believe that has a great deal to do with the development of that very important organ encased in the cranial cavity. I also believe that the use of the teeth, the utilization of the function of occlusion, has much to do with supplying that important organ with blood. I think the difference between a passive and an active blood stream is important; but I do not know. I think the use of these teeth bring a pure, arterial blood supply to the brain.

Now in private conversation with Dr. Wright this morning he has outlined a very basic experiment, but unfortunately that experiment has recently been undertaken by a Dr. Anderson, who is also a rhinologist. He lives in Detroit or Buffalo, I think. He closed the nasal cavities of some of the lower animals, and he found that he caused the same deflection of the cranial bones that I caused by interfering with the function of the teeth, and he found that the bones of the thorax were distorted similarly to the cases of my own. I have been in correspondence with Dr. Anderson, and I hesitated to mention the fact that there was a deformity in the bones of the thorax from my experiments. He said, "I believe you, because I have found the same result from my experiments." Another very interesting thing in Dr. Anderson's experiment is that when he closed the nasal cavities, and caused the animal to breathe through the mouth, in a short time the dogs operated upon became old animals. The hair came out, the skin became wrinkled, they were mangy and were subject to infection. A wound on one of them became septic, and the animal died of septicæmia. One of the animals went through the same process of aging, but the stitches in the nose pulled out, and in a short time the hair grew, the wrinkles came out of the skin, and he was a frisky young animal. That shows the importance of normal nasal breathing. This, and the functions of the oral cavity, are two of the basic principles of life, I think.

Dr. Federspiel. Mr. President: Dr. Wright's paper on "Malformed Bones of the Face as a Cause of Brain Inactivity," is instructive and interesting, because the doctor points out the value of equalizing circulation, and we learn of another reason why abnormalities of the mouth, jaws, and face should be corrected. Pathological conditions in any part of the body may retard circulation; for instance, endo-carditis may produce permanent heart lesions, and unless nature produces compensation, there will be venous congestion of the liver. I may cite a patient 24 years of age, who had been suffering from acute endo-carditis. Upon examination, we found heart lesions without compensation. A short time after that the liver became abnormally enlarged; this was due to passive congestion, a dam-

ming back of the blood. The patient became emaciated and weak, and was not active mentally because the circulation was interfered with. A disturbance of the circulation is brought on by many causes, such as arterial sclerosis, tumors, nephritis, adhesions, embuli, etc. While probably malformed bones of the face have a tendency to produce brain inactivity, we must not forget that there are many other causes which are strong factors in affecting the patient mentally. It behooves us therefore to always be careful not to make a snap-shot diagnosis. This frequently happens with dentists who call any disease of the mouth pyorrhea; it

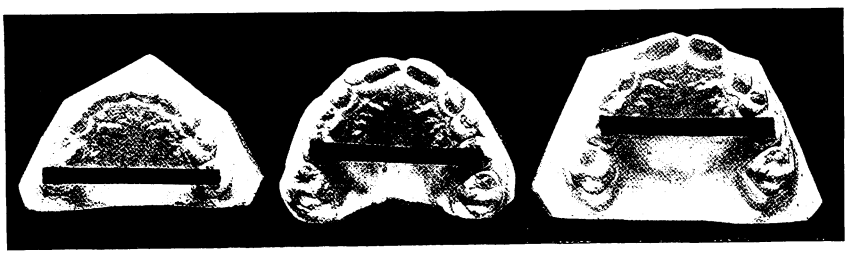


Fig. 1.

has become a fashion. To successfully treat patients suffering from mouth diseases, we must be able to make a differential diagnosis between stomatitis, syphilis, and other diseases, as well as to know the etiology, pathology, and prognosis. Then, and then only, can we begin to successfully treat pyorrhea and other infections of the mouth.

Dr. Hawley. This subject, as it has been brought out by Dr. Wright, is one of the most interesting and important that we have had before us in a long time. The question comes to my mind, that when satisfied as to the great influence of the teeth in mastication, can we make that so important as to induce a pleasure loving people to depart from their easy ways in the mastication of food (or absence of it), and get back into the habits necessary to develop the skull and brain to their proper proportions? I have been satisfied for a number of years that in the present habits of life of children, regarding the mastication of food through the time of development and use of the temporary denture, neither the temporary nor the succeeding permanent denture is developing, as we naturally have expected it would. All our authorities have taught us, and all their observations of prehistoric people have shown that the temporary denture grows laterally. Dr. Bogue pointed out some years ago that it did not, in two or three cases. I have gathered lately some further evidence on this subject that may be interesting. I have been fortunate enough to be able to inspect

cases, which have gone over a period of several years without treatment, and I have been astonished at the results.

Here is a case (Fig. 1) which came to me something like five years ago; on the left is the upper temporary arch. The occlusion of the temporary denture was perfect, leaving out of consideration the presence of growth spaces. I made the models at that time for reference, and ex-

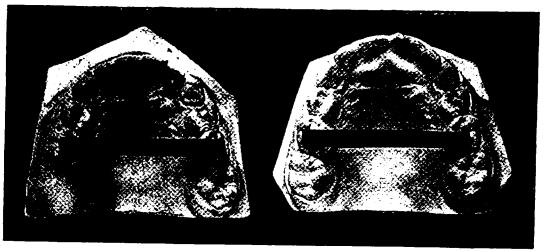


Fig. 2.

Fig. 3.

pected the case would be treated. It went on for three years; the model in the centre shows the condition at that time. The model on the right was made two years later. That was last June. I took pieces of black paper of the same length, and pasted them across the second temporary molar region. The width of these are practically the same. There is not enough difference to take into consideration. That arch should be something like 23-100 of an inch wider than it is, to form a normal arch. There has not been 2-100 of an inch growth in five years.

In looking at models, one should remember that a short arch always looks wider than it really is. Thus some of these cases, after the first permanent molars have erupted, look wider, when accurate measurement shows them to be of exactly the same width. So also when the first molars are in place, unless you keep in mind the appearance when the second and third have appeared, you are apt to be greatly deceived. The only safe way is resort to actual measurement.

Dr. Wright. Give the height of the arch on the left as compared with that on the right.

Dr. Hawley. I have no instruments to measure that accurately. I doubt if there is any difference.

Here is a case that came to me at the age of six. (Fig. 2.) On the left we have the upper temporary arch; only one perma-

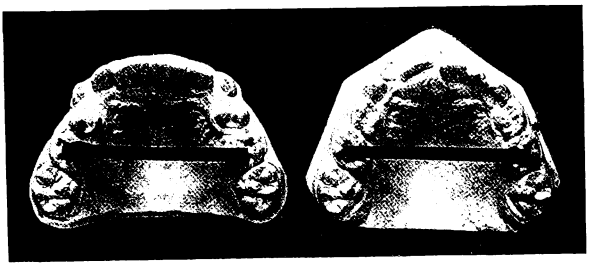


Fig. 4.

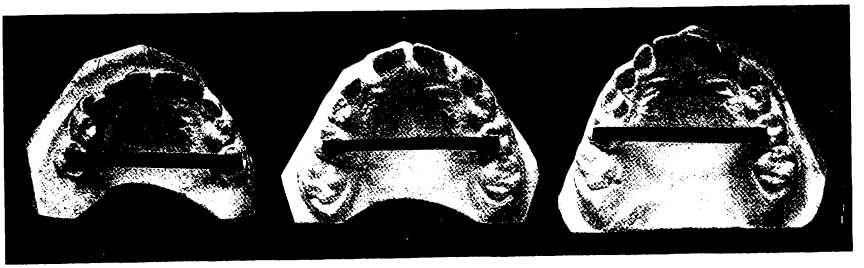


Fig. 5.

nent molar had erupted. The case came to me six years ago, and was not treated. There was distal occlusion, and I did not know what to do with it, so did not do anything. Three years later I began to treat it, and I took these models, and you see here again, during the three years there has been absolutely no growth in the temporary denture.

In Fig. 3, on the left, is another case at six. The first molars have just erupted. On the right is the case at 8. At this stage the case was treated, and the arch widened about 36-100 of an inch. It was a very extreme expansion. No growth whatever of the denture was noted in the temporary region.

The last two are cases of abnormal breathers. In Fig. 4 is the case of a child as normal as any I ever saw. She is the picture of health. One model was taken at seven years of age, and the other at eleven. There has been in this case a slight growth, probably 2-100 of an inch.

(Fig. 5.) I have not the complete history of this case as to breathing, etc., but my impression is she had an operation for adenoids. Beginning at the left are models taken at five, at eight and at ten years of age. There has been some growth, but it has been less than one-quarter of the amount of necessary growth, if we take as a standard the normal denture.

Fig. 6 shows a case at four and again at seven. In this case there has been absolutely no widening of the denture in three years' time. In length there was, if anything, a slight shortening, probably 1-100 of an inch. It was necessary to widen the arch 34-100 of an inch.

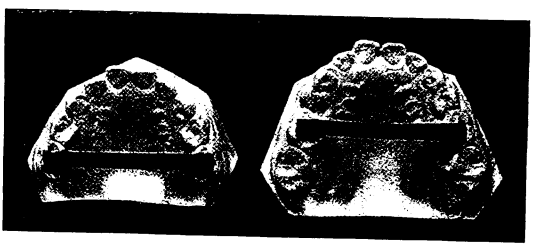


Fig. 6.

The conclusion I would come to is that with our present mode of living and the bringing up of children, lack of outdoor life, faulty mastication of food, etc., their dentures do not develop. Two of these are normal children and four are abnormal breathers.

Dr. W. C. Smith. This subject of lack of function and development, as brought out yesterday by Dr. Baker and today by Dr. Wright, has interested me very much. I have had an interesting case, the slides of which, unfortunately, I did not think to bring along. The case is that of a boy of twelve having decided and marked assymetery of face. The occlusion was normal on the left side, and on the right the temporary molars were in place as well as the sixth year molars; all were in decided infra-occlusion. The second temporary molar was impacted, being slightly below the lower first molar on the right side. The long side of the face was the side in infra-occlusion. The left side was the short side. On that side the occlusion was normal and the muscles were working normally.

The point made by Dr. Baker that normal function produces normal development is important, but in this case it seems as though it might be the other way. The long side of the face was the side in infra-occlusion, and the short side had normal function. Whether due to excessive ossification or the impaction of the temporary molars, I do not know. By

using the elastic ligatures and drilling pits in the buccal surface of the temporary molars, and using from one to three rubber ligatures attached from the upper arch, ligated to the teeth of the upper arch, with hooks to engage the lower temporary molars, these teeth were erupted. The bicuspids are now well erupted, but the facial deformity remains. The boy seems to have had excessive ossification. A dentist tried to extract the upper temporary molar. He could not extract it. It may have been due to the excessive ossification. He has a large and exceptionally well developed mandible. He is thirteen years of age now, and this fall enters the high school.

Dr. Morehouse. I would like to substantiate Dr. Hawley's remarks as to lack of growth, etc. My own three little girls, the oldest now twelve years of age, the second one eleven, and the youngest five, have given me opportunity for making some observations. I have watched the cases very carefully. The older ones were developing malocclusion before I became interested in orthodontia to any great extent; but the five-year-old I have allowed to go on, and it may sound neglectful, but I did it because I wanted to follow the case and see the result. She had a tendency toward a very marked narrowing of the upper arch, as well as the lower, and the case went on for about one and a half years. I have not started it as yet, but will do so on my return. The arch has narrowed continuously during the past one and a half years. There has been some slight nasal obstruction, and the tonsils are enlarged. The other two girls are in perfect health, and have been since they were babes, and there has not been a particle of decay in the temporary teeth. Under-development has occurred in four or five years of time. Although there was normal occlusion mesio-distally, there was lack of development buccally. When the incisors began to erupt, I had to expand the arch and correct the deformity.

Dr. Federspiel. In growth there is a period of rest and a period of activity, and we must not confuse that with metabolism, which is normally constant.

Dr. Hawley. When are those periods?

Dr. Federspiel. No one knows, but we do know there is a period of growth and a period of rest. Men confuse that with metabolism.

Dr. Baker. While that case of Dr. Smith's is fresh in my mind, I would like to say that with a rabbit we had the same thing. One side functionated and the other did not in Dr. Smith's case, and the longer side of the face was the disused side. I will show something of the same kind in the case of the rabbit. (Showing slide.) This is the operated-on side—the right side.

The left side is the normal side, and note that the inactive side is longer than the active side, which bears out the theory of Dr. Smith.

Dr. Ottolengui. Did he not speak of the vertical length, from the top of cranium down?

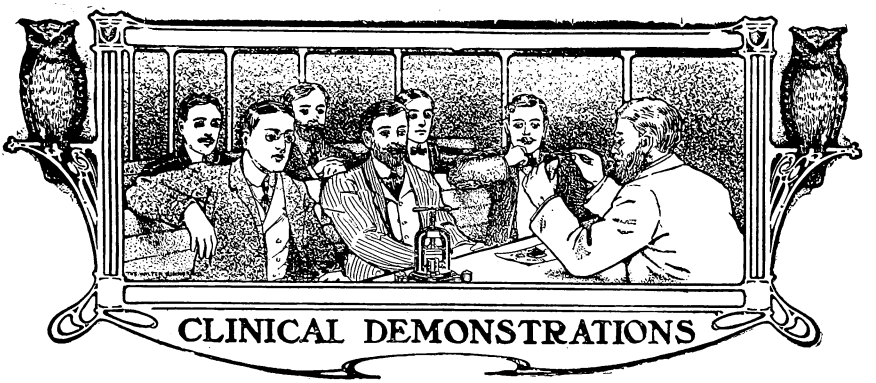
Dr. Smith. The length of the face vertically was greater on the unused side than on the normal side.

Dr. Baker. Although this does not quite prove the theory, nevertheless the operated side is longer than the other, but longer in a different way than stated.

Dr. Wright. It would be impossible to answer all the questions, or take up the statements of the different speakers separately. I will take up the most essential points brought out, however. In nasal obstruction we can write volumes of the reflexes that influence different parts of the body, of the different detrimental things, but we will try and stick to those that cause brain inactivity. There is one other thing I will refer to. Dr. Bogue and Dr. Baker spoke of the malformed chest walls found during their experiments. It would be interesting for either of you to secure a book on *Physical Diagnosis,* by Charles Lyman Greene, of St. Paul. He gives in that book a photograph of the typical mouth-breather. He gives also some malformed chest walls and malformed spinal columns, which are interesting. He figures that all pigeon-breasted children will be found to have had during the developmental stage, trouble with the nasal passages, and that the malformation of the chest is generally a sequela of such conditions. Dr. Bogue points out that malformations are produced from a lack of functional development. I think he has hit the nail on the head. Exercise and get away from this nice, dainty way of living in which the children are not to be asked to exercise themselves. Make them work: work develops them.

Speaking of Dr. Cronin made me think that he found in his statistics of the school children of New York, in an examination of 99,900 children in Manhattan, that about ten per cent. were afflicted with nasal obstruction to such an extent that they should be operated on. The greatest proportion were suffering from nasal obstructions, causing the various eye diseases, etc.

Dr. Bogue referred to the straight septum. The cases I referred to were those deviated to such an extent that they could be benefited by an operation. I find no perfect specimens of anything anatomical that I have ever seen. The development of the arches, as illustrated by Dr. Hawley, was very interesting to me. I have been watching some of the models from Dr. Ketcham's office with relation to this same condition.



The Cast Gasket Porcelain Crown.

Clinic by WM. H. TAGGART, D.D.S., Chicago, Ill.
Presented before the Second District Dental Society of New York.

On December 12, 1910, the Second District Dental Society held an afternoon and evening meeting in the Borough of Manhattan. The afternoon meeting occurred in the Howard Building, on Fifth Avenue, an office building mainly tenanted by dentists. A large attendance was anticipated, and two hundred chairs had been provided, but to the surprise of all, these were not only all occupied but seventy-five men were obliged to stand. This is probably the largest audience which ever attended a one-man dental clinic anywhere in the world.

Dr. Taggart stood on a raised platform and demonstrated his method with monster models, which were easily seen by all. Unfortunately, the stenographer was prevented from attending, but the following report has been submitted to Dr. Taggart, and consequently may be accepted as representing his views and as describing his technique.

Ever since the advent of the banded Richmond crown, it has been the hope of all crown workers to find a way of fitting the end of the natural root with absolute accuracy. When the casting method was given to the world, many at once conceived the idea of using some style of pinless tooth, and casting a gold gasket, which would accurately fit both the porcelain and the root end. This has been accomplished with more or less success by many, but no technique thus far published has rendered the success of the operation so positively certain as the method about to

be described. By this method Dr. Taggart not only aims at obtaining an exact adjustment of the gasket to the root end, but he also plans to attain the maximum of strength for the union of crown and root, with the minimum of destruction of the root itself. He also provides a means by which the porcelain crown may be ground and fitted upon an accurate model of the natural root and its adjacent teeth.

Fig. 1.

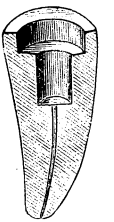


Fig. 2.

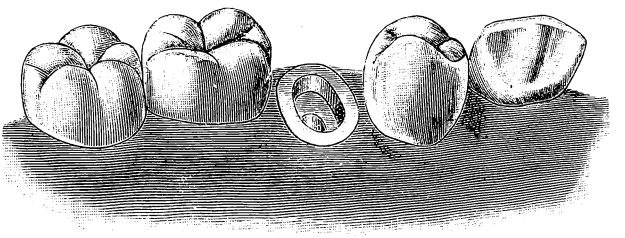


Fig. 3.

Inlay Principle in Crown Work.

The strength of the attachment is achieved by a combination of two ideas believed to be new in crown work. First, in regard to the dowel or post, Dr. Taggart claims that all tapering posts are wrong in principle, the taper offering insufficient resistance to the stress of mastication, to overcome which, dentists have been using posts much longer than necessary, thus lessening the strength of the root, and inviting fracture of the same. The strongest possible post is a comparatively short, stout iridio-platinum post, having parallel sides, and cut to form a coarse, threaded screw, this screw post to be fitted into a root canal drilled exactly large enough to receive it. Such a screw post (Fig. 1), if extending into the root about one-third of its length (Fig. 2), will be a stronger attachment when set with cement than would a tapered post reaching quite to the end of the canal. This method likewise has the

advantage of leaving the apical two-thirds of the root canal unchanged, and the root itself consequently much stronger and much less apt to be split or fractured. In passing this, it may also be pointed out that if all crown posts were made with a screw thread, they would be more easily removed in case of subsequent necessity.

In conjunction with the short, stout screw post, Dr. Taggart introduces his second idea, which is to practically adopt such a root-end preparation that the rootward side of the gasket will fit the root end as an inlay fits a tooth cavity. To accomplish this, after preparing the root canal to receive the screw post, he countersinks the end of the root, forming an oblong cavity which tends to prevent rotation, as seen in Fig 3 (also shown in section in Fig. 2). In order that the gasket may get a firmer clutch, it is also advisable to bevel off the entire circumferential margin. This causes the gasket to cover the circumferential margins when set, so as to form a lapped joint.

Fig. 4.

Fig. 5.

The Root Cap.

The root having been prepared, and appearing as shown in Fig. 3, a piece of pure gold, five-one-thousandths of an inch thick (36 B. and S. gauge), and slightly larger than sufficient to cover the end of the root, is placed over the root end, and approximately burnished to it. At least the outlines of the circumferential margins may be made to show sufficiently to serve as a guide for trimming off the surplus. With a sharp, pointed lance a cross incision is made through the gold immediately over the countersink. This will form four angular points, which may readily be forced into the countersink. (Fig. 4.) The accurate adaptation of these pointed pieces may be accomplished by swaging them into the countersink, by packing the same tightly with a ball of wet cotton. When the cotton is pressed tightly to place, it will be found to hold the gold root cap so well that the hands will be left free. The root cap may then be perfectly swaged against the root end by overlaying it with a mass of wet cotton rolled tight, and then malleting upon the cotton with an orangewood or pine stick. The root cap is then thoroughly burnished over the beveled circumferential margin. (Fig. 4.) In doing this it may occur that the gold will wrinkle, in which case the root

cap, with cotton still in place, may be carefully removed, and these wrinkles cut with small (manicure) scissors. The root cap must then be returned to place, reswaged to the root end, and reburnished to the circumferential margins, in which process the scissors slits will now facilitate the successful completion of the operation.

The cotton is carefully removed from the countersink, and the already fitted screw post placed in position. This post should not be so long that it would protrude beyond the root cap. The screw post and root cap both being in correct position and relation, a piece of Taggart inlay wax is softened and forced into the countersink, and around the screw post. A hot burnisher is then used to thoroughly melt the wax in the

Fig. 6.

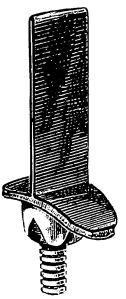


Fig. 7.

countersink, and around the screw post, thus making it assured that the wax is firmly attached to both and, what is more important, that it completely and perfectly fills the countersink.

If the root cap, screw post, and wax were removed at this time, it would appear as in Fig. 5. It should not be removed at this time, however, as there might be some danger of bending or distorting the delicate root cap. The next requirement is to obtain a model of the parts which shall carry the root cap, post and wax, exactly reproducing the relations in the mouth.

Method of Making Model.

A piece of phosphor bronze (or other suitable metal) about 24 gauge (B. and S.) is cut into a long strip of about the width of the space between the adjacent natural teeth. The strip is bent upon itself evenly, the ends turned at right angles and then slightly curved so as to form a T-shaped impression tray, as indicated in Fig. 6. The lips of this impression tray should be bent so as to have the handle centrally located in this space, and lip ends no longer than necessary to

cover the root end. All the surplus inlay wax is cleaned off from the root cap until all of the gold surface is left exposed, the only wax showing being that in the countersink, as may be seen in Fig. 10. This is done that the next step in the technique may more thoroughly protect the root cap from all possibility of alteration of shape when removed from the mouth for placing in the impression. The root cap being thus prepared, and perfectly dry, the impression tray (Fig. 6) is slightly heated and smeared with Bottom wax. Bottom wax is a quite tenacious

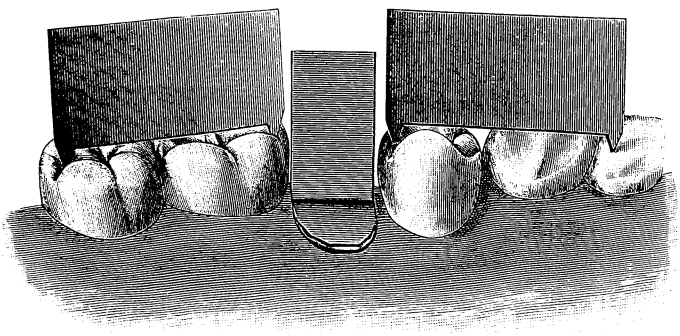


Fig. 8.

hard wax, and though somewhat similar, is better than the hard or sticky wax usually found in dental laboratories, because at the temperature of the mouth it is rigid, and with the tray to help, makes an absolutely unyielding union between tray and gold root cap. Next, the Bottom wax attached to the impression tray is softened to a sticky consistency, and then carried quickly and firmly to place against the dry root cap. Fig. 7 shows the impression tray attached to the root cap, when the latter is withdrawn from the root, as may be done with safety after the plaster impression has been taken. In both Fig. 5 and Fig. 7, it may be seen how the inlay wax melted into the countersink appears between the points of gold, thus forming a perfectly adapted inlay for the countersunk root end.

Taking the Impression.

With the root impression tray in place, as seen in Fig. 8, the next step is to take an impression in plaster, in such a manner that it may be readily removed from the mouth, and reassembled without loss of essential particles, as is the common experience with methods now in vogue. To this end, plaster is mixed so as to be creamy and

smooth. At first it may best be carried to place with a flat half-inch camel's-hair varnish brush, preferably having the handle bent at an obtuse angle. With such a brush the plaster should be evenly smeared between the teeth adjacent to the root, and then over the labial and lingual surfaces of all teeth required. During this process, as soon as the plaster sets sufficiently so that it no longer leaves the brush readily, the brush should be abandoned and a plaster spatula used for quickly carrying to place sufficient plaster for strength of the impression mass. At this stage the

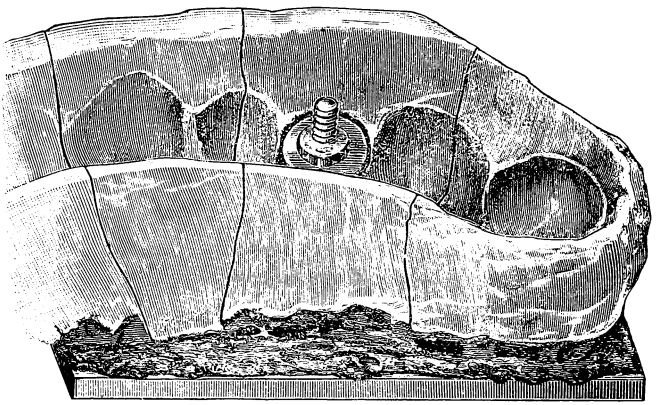


Fig. 9.

plaster should be scraped off until the end of the impression tray handle is exposed. This gives a guiding line by which the two pieces of phospor bronze may be properly placed; that is, in exact line with the teeth cusps. When the plaster is somewhat, but not too stiff, two additional pieces of phosphor bronze are to be introduced. These should be cut from 24-gauge metal, as shown in Fig. 8, and should be forced through the setting plaster to occupy approximately the positions shown in the illustration. (Fig. 8.) The plaster is then allowed to set sufficiently to break with sharp fracture. At this point it will be observed that the three pieces of metal divide the impression centrally in such a manner as to render the breaking and removal of the impression in sections comparatively easy. The central piece of bronze, used as the impression tray and protector for the root cap, likewise serves to cause a fracture of the impression at this important position, so that it may be accurately re-assembled. The plaster, of course, extends mesially and distally slightly beyond the metal strips, and likewise passes between them. These contact points materially aid in accurately re-assembling the divided portions of the impression.

When re-assembling the impression, the root cap and post (Fig. 7) are carefully put in place in the impression, but the other two pieces of bronze are omitted. Sticky wax is then used to hold the parts of the impression temporarily together. A piece of brass plate, six inches long, one and a half inches wide, and one-eighth of an inch thick, should now be smeared with modeling compound. This can best be done by heating the brass quite hot and placing a piece of modeling compound on it until the modeling compound spreads over as much surface as the plaster impression does. While this modeling compound is bubbling hot, place the impression on it, and push until the impression touches the brass; then with the fingers or hot spatula, force the overflow around the impression so as to hold every separate piece in contact with the brass plate. The impression then appears as seen in Fig. 9, where it is shown attached to the heavy sheet of brass with the modeling compound. The object of this is to permit cutting up the impression without alteration of shape. To accomplish this a jeweler's saw is used, and the saw cuts carried completely through the plaster and down to the brass. This is facilitated by allowing water to run upon the impression during the sawing, for which purpose it may be held under the water faucet. In Fig. 9 three such saw cuts are seen, and when it is remembered that the impression was originally divided throughout its length by the pieces of bronze, the impression, though practically intact for all practical purposes, is nevertheless really divided into eight pieces.

The impression is next varnished, and for this Dr. Taggart uses an aqueous solution of shellac. Ordinarily shellac must be dissolved in alcohol, but it may also be dissolved in water by placing equal parts of shellac and borax into the water at one time. A clear solution will rise to the top after a day, and water may be added to the sediment from time to time. The advantage of an aqueous solution is that it may be used upon the impression while still wet, thus saving much time.

Making the Cast.

The model is made with Taggart's investment, and although this does not become as hard as plaster of Paris, nevertheless by the technique here presented, the hard plaster impression is easily removed from the softer cast without injury to the latter.

In using Taggart's investment for the purpose of making a model, it may be well to mention that the technique is totally different from the utilization of the same material for investment purposes. When investing inlays, the proper proportion of water and investment material makes a combination scarcely thicker than milk. For filling such an impression, as is shown in Fig. 9, Dr. Taggart mixes his investment material so stiff

that it may be handled like putty. Quickly handling small balls of the same, he forces these balls down into the impressions of the teeth, around the root cap and screw post, and then with larger masses fills up the whole impression. The peculiar nature of this investment material allows ample time to attend to this detail without the danger of making mistakes usually caused by having to work rapidly. This yields a model much stronger than if the investment were mixed and poured thin. When the investment has hardened the modeling compound can be removed by heating the brass plate. The advantage of the defined cleavage lines caused by the bronze plates, the impression tray handle, and the

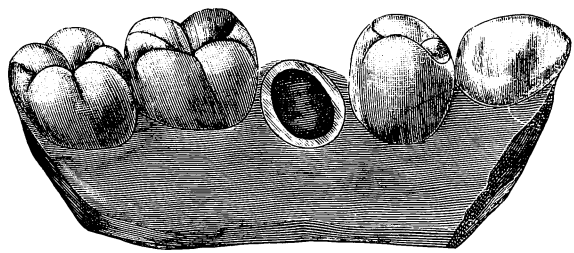


Fig. 10.

saw can now be seen, as these separated pieces of hard plaster are easily removed, without danger of marring the much softer investment model underneath. Fig. 10 shows the model, made of Taggart investment material, and the root cap is seen to occupy the same place and relation to adjacent parts as when in the mouth. This investment material model may be further protected by giving it a coat of thin shellac varnish, which penetrates the model. This is more particularly desirable where it is found essential to use an occluding model against it, as it avoids injury by abrasion.

Adjusting the Porcelain.

With such a model, and especially if an occluding model be utilized, a pinless porcelain crown, as, for example, the Davis crown, may be ground to accurate relations with adjacent teeth, occlusion, and root end.

The operator is not handicapped by the post as commonly used, where the same post which enters the root canal must also enter the Davis crown, notwithstanding the fact that the direction of the one and the other may be, and often is, divergent. But with such a model as is shown in Fig. 10, the porcelain crown may be accurately ground to proper adaptation, and thoroughly coated with equal parts of castor oil and glycerine to keep wax from sticking, after which a short screw post,

similar to the one used in the root, is dropped into the porcelain, and the porcelain then being held in proper relation, is tacked at some point on the model with sticky wax; this sticky wax permits the porcelain to be closely adjusted and held in place while inlay wax is melted between it and the root cap, and, of course, around and engaging the crown post. Thus the crown is fixed in place, and we may make sure that it is in proper occlusion, in proper relation with adjacent teeth, and in contact at the gum margin.

All this being assured, with a jeweler's saw a section carrying the crown is cut away from the rest of the model, appearing as shown in Fig. 11. This sawing should be done with model dry, as wetting at this

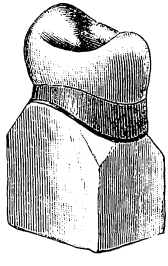


Fig. 11.

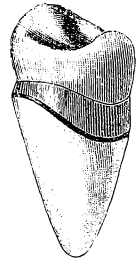


Fig. 12.

stage weakens the investment model. The investment may next be further trimmed away until the entire circumferential margin of the root cap is exposed (Fig. 12), at which time the piece may be readily held in the fingers and the wax portion made more perfect. By this technique one may be assured that the finished crown will in no place extend beyond the circumferential margin of the root end.

After a sprue former is attached to the thickest portion of the wax, the porcelain is removed and the whole invested, regardless of the fact that the part of the gasket which is to enter the root is already surrounded by investment. Indeed this is an important feature of the technique, for it will be observed that at every step, after the root cap has been swaged to the end of the root, it is most carefully protected from any chance of distortion. When the casting is being made the gold should be unusually hot, and it will displace the thin root cap or completely surround it.

After the casting has been made, and the porcelain is set in the gasket, it will appear as seen in Fig. 13. In Fig. 14 is shown the cast gasket itself, with the root post and crown post, and it will be noted that in this case the two are by no means continuous. This is a particularly

noteworthy feature of this technique; the crown and root posts being separate, but united by the casting of the gold gasket.

Variation.

In cases where the over-bite is great, and it may be feared that a crown such as above described may not be sufficiently firmly seated to resist the labial pressure of masticatory stress, an adequate resistance may be obtained

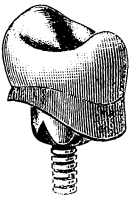
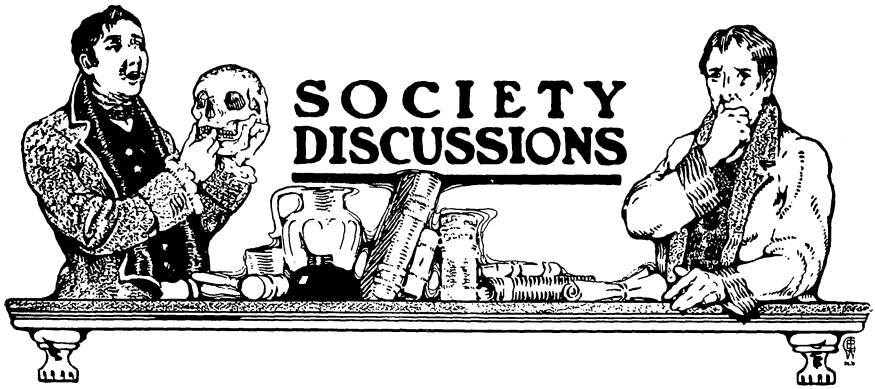


Fig. 13.

Fig. 14.

Fig. 15.

in two ways. First, when constructing the root cap (Fig. 4), that portion at the lingual surface of the root may be cut longer, and when burnished down under the gum, and against the root, will eventually serve as a half collar. A second, and perhaps more certain method, is to cut a small strip from a piece of clasp metal, form it in the shape of a right angle, and attach this to the root cap (Fig. 4) with a piece of Taggart wax in such a way that it will extend down against the lingual side of the root (Fig. 15). Subsequently, when the cast is made, this little extension will be picked up by the fluid gold and firmly attached to the root cap. A crown made in this way will have a finger-like extension which will pass slightly below the gum margin, and hugging tightly against the lingual aspect of the root, will serve as a resistance against all masticatory stress which would tend to force the crown outward or labially. It is this stress which has displaced so many crowns, often resulting in fracture of the root, and it is such accidents which have made the banding of roots seem essential in the past, but this clasp-metal finger extension will serve every good purpose of a band, without the objectionable features. The necessity for such an extension may be determined by a study of the over-bite. The patient may be asked to slowly move the mandible in all of its various excursions, and the operator may thus determine whether or not sufficient stress will be brought against the crown to make it advisable to use this finger extension.



Second District Dental Society, October, 1910, Meeting.

The Second District Dental Society held its autumn meeting on Monday, October 10th, 1910, a large assembly being present. The routine business was rapidly transacted, twenty-five new names being recommended by the Membership Committee. The President then introduced Professor James H. Prothero, of the Northwestern University of Chicago, who read a paper entitled "The Condyle Path."

Discussion on Dr. Prothero's Paper.

President Ottolengui. I am sure, if this is a sample of the programme our Executive Committee has mapped out for us, we should look forward with pleasure to the coming meetings. The committee has invited teachers in the schools to be our essayists this year, and in listening to Dr. Prothero it occurred to me what a great pleasure it is to listen to the fluent talk of a man who has such a grasp of the subject, that "out of the fullness of his heart the mouth speaketh."

I will throw this subject open for general discussion after the first gentleman who has consented to open the discussion to-night has spoken. He is another one of our teachers—Professor Hillyer, of the New York College of Dentistry.

Prof. Ellison Hillyer. I could not help thinking while listening to this lecture that we have had this subject placed before us now for three consecutive years. Three years ago we had Dr. Waugh, of Buffalo, who gave us the views as then held practically by Professor Snow. Last year Professor Turner came on and went over this same subject, and now we have Professor Prothero. I must say that in every one of those presentations there has been something that was absolutely good, and something has been added each year, while prehaps the general subject has been the same.

This subject, if taken up a few years ago, would not have elicited any

kind of enthusiasm. I think we all agree on that; and it has been only within the last few years that it has taken on anything like what we might call a scientific phase. That is due to the recognition of the work that has been done by these men, who have been striving through various stages of mechanism to properly accomplish the accurate transference of the waxes from the mouth (and you must remember that Dr. Kingsley has been recorded as spending a full half day sometimes in modelling those waxes within the mouth to get the proper restoration) to some kind of articulating frame that would record the same relations as those found in the mouth. I think Dr. Prothero said that there is probably no articulator in existence that exactly reproduces the mandibular movements. I hope the latest apparatus of Dr. Gysi will give us something in that direction. I have not seen one of them, but from the published descriptions it has seemed to be extremely complicated. I hope we may soon get one and study it carefully.

In his modesty the essayist did not refer to the attachment which he has made, which is known as the Prothero attachment, to the face bow, to facilitate its use. I wish he had pointed it out, but I presume his modesty forbade it.

If we have had this presentation three times, and each time with more interest, it presages the use of this method by the profession at large, so that in time there will be no articulating done except upon such a frame. I think we can congratulate ourselves upon having the season opened with an essay of this kind by an essayist who comes all the way from Chicago to meet with us.

President Ottolengui. To-night we are discussing the articulation of teeth in simulation of nature, while at the First District Society to-morrow night we are to hear from a gentleman how we are soon to have sets of teeth which will more nearly simulate nature. Of course, after we get them we will need to know what to do with them.

In one portion of Dr. Prothero's remarks he spoke of the necessity of beginning with the bicuspids, because if you begin anywhere else, when you reach the bicuspids they will not articulate.

We have as our honored guest this evening a gentleman who is going to tell us about a new type of teeth wherewith we can begin with any tooth and get the proper articulation. I will ask Dr. J. Leon Williams, of London, to make some general remarks on the subject.

Dr. J. Leon Williams, England. I have only just landed to-day. I had rather a rough voyage, and I hope you will excuse me if I do not make any extended remarks. I am extremely glad I came here to-night. This is the

second time within a year that I have enjoyed the hospitality of this society, and if this thing goes on, I feel in justice to you I ought to apply for membership. (Applause.)

I do not think I will attempt to cover any of the ground Dr. Prothero went over, because I will try to do that to-morrow night. He has taken one field only—that is, the condyle path—and I must do more than that. I am very glad to have heard his paper, and I hope you will all come over to-morrow night to the meeting of the First District Society.

Reference has been made to the fact that with teeth that I hope to bring out soon it will not be necessary to set up first the first bicuspids of the lower jaw. I have long recognized that the lower incisors are never properly adjusted to the upper incisors. They are nearly always too wide—that is, as they have been supplied to us—to come in proper relation with the others.

I wish to thank Dr. Prothero for the privilege of listening to such an able paper. I am very glad to hear this advocated in the strenuous way in which it is by such an able man.

The President. Has Dr. John Meyer anything to say in discussion of this evening's paper?

Dr. John Meyer. I am very glad you called on me. This subject is near to my heart. Before starting in I want to say, if anybody had told you twenty years ago that we would fly in the air, we would not have believed it. In 1871 a facsimile instrument of the one shown to-night was shown to Dr. White, of the S. S. White Dental Manufacturing Company, and Dr. White told the inventor he was crazy. To-day we have it before us in a scientific manner.

As to the condyle path, I do not know anything about it, but I think I get just as good results as the Doctor does with his articulator, and with all his knowledge of the condyle path. The Doctor claims teeth set up in the manner he describes are the only ones that are really perfect. At the same time, he tells us that after they have been set up and finished he grinds h—l out of them! (Laughter.)

I want you to understand I do grind a good deal, and I set them up according to the old style. I interlock them perfectly, but when I get them in the mouth, then I use the grindstone. I take off the protruding points, so as to give the patient room to go back and forth without displacing either set, and the patient can do something with them. If you leave them as they are shown in the articulators, if the patient does not interlock them just as in the articulator, they will wobble about. That has been my experience.

Dr. E. A. Bogue. We have just learned something in regard to experience from our friend. The wicked Frenchman says our experience is the sum total of our failures. It seems to me he is right. We have all in our school days done a little dissecting, and we have found in the adult skulls a glenoid fossa the upper end of the ascending ramus of the mandible, and a fair fit; but we could not, as Dr. Prothero has told us, put that hinge together and make it stay. It would all go wrong. When we got into practice and got to making artificial teeth—I speak for myself now—we found we had to do the grinding that Professor Meyer tells about. Our various authors—Bonwill, Christiansen, Gysi—took up the matter a little more carefully and discovered that the sides of the cusp of the normal human teeth had something to do with the trituration of food, and we tried to make artificial teeth that should accomplish the same result as the normal human teeth. We found we had our hands full. We have been shown to-night how, by using an articulator that is constructed as we now know how to construct it—after the manner of the human jaw—that we may use that articulator in such a way as to get our wax trial plates together properly on such an articulator, and that when we get some good artificial teeth they may be ground to place and with confidence inserted in the mouth with a full understanding that those teeth will stay in the mouth as they are put. Am I correct, Dr. Prothero?

Dr. Prothero. You are.

Dr. Bogue. So we may then add the teeth one by one, and get these results. I had it written on my paper to ask Dr. Prothero why we should not begin with the bicuspids and set up backwards. I did not ask that because he has given the answer already—because the teeth which you buy do not fit. Dr. Visick, of London, gave some natural models to the Ash's in London, and a few have been made. Dr. Williams has been at that work for a long time, and he will have something else to give us to-morrow night. One of the companies here in New York has manufactured teeth with pretty good grinding surfaces, but although we have those teeth at this moment, we did not have them in the past; and although we have those teeth, unless we adopt the plan which Dr. Prothero has shown us to-night, or something akin, we are not going to have comfort in articulating and grinding.

Now I want to come to a little quarrel I had with my friend Wheeler a year or two ago, in which he took the ground that as age advances we grind off these teeth more and that the teeth are practically flat as old age is reached. I ventured to dispute that, and he said he had examined about 1,500 skulls. I took the liberty of saying that the prob-

ability was that 1,499 were not normal, and if there was one that was normal he would find that the cusps of the mandibular teeth, striking into the fossi of the upper maxillary teeth, would wear just as deeply as the sides, and that old age might come and go, and the individual go, too, and still there would be sharpened teeth. I find Dr. Prothero making practically that statement to-night, and showing us how we may, if we are careful and know enough, so set up artificial teeth as to accomplish, not the result of wearing evenly, but the result of chewing evenly.

Dr. Prothero. I would have been more gratified if we had had a little more heated argument on the subject, because there is nothing that sharpens one's ambition more than to hear our statements controverted, and I am sure every one of you, if you had seen that the presentation of the subject met with violent opposition, would have gone home and tried it. That is all I ask you to do—to go home and try it, and you will adopt it.

Dr. Meyer mentioned the fact that under certain conditions the jaw wobbled around. It does not. Wobble, as I understand it, means moving in any direction. There is a capsular ligament attached to the condyle which prevents any great side motion. One condyle, to all intents and purposes, remains in position, or rotates very slowly, while the other moves. You would not say a lever wobbled, but rather that it swung around in its axis. I used to think the jaw moved aimlessly, without any definite direction, never twice in the same way. If you study the anatomy of the human jaw in its relation to its fossi, you cannot believe that. It is fallacy to make such a statement. There are definite lines of direction. It moves either to the right or to the left, guided by the teeth. The two must work together harmoniously, and when you get that—and you can get it—you can leave your cusps so they will interlock. Many men do it in the West, and here in the East some of you try to do it. In the West we are enthusiastic about it. We used to set up teeth as Dr. Meyer does, but this method is so much simpler that we follow it now.

Dr. Meyer said I grind h—l out of the teeth. We may have to touch them only at one or two points, sometimes at four or five, and I venture the assertion that there is not a set that Dr. Meyer fits in the mouth of his patients that cannot be improved by retouching after having been worn twenty-four hours. There are points that we cannot detect. I never have seen any man do it absolutely perfectly the first time. I come as near it as most men, but I cannot do it perfectly, and I do not think any man can do it absolutely perfectly.

A hearty vote of thanks was tendered to the essayist for his interesting lecture.

Adjournment.

EDITORIAL

Conservative Treatment of the Dental Pulp.

At the eighth annual meeting of the Austrian Stomatological Society, held in Vienna in December last, Dr. Max Kulka presented an exhaustive report of a series of experiments which he had carried on to determine the possible danger to the pulp of using cement fillings.* This is an immensely important subject, in this day when inlays, either of porcelain or of gold, are being so extensively used.

There have been many discussions in the past relative to the possibility that death of the pulp, occurring after the insertion of cement fillings into deep cavities, may or may not have been due to some deleterious action of the cement. Some have argued that in practically all cements there is a trace of arsenic. This theory, however, met such adverse criticism that it has been practically abandoned as untenable. Dr. Kulka considers that a menace may lie in the phosphoric acid, and his experiments prove that the acid may pass through a layer of ivory of considerable thickness, from which he argues that a pulp protected by only a thin layer of dentine may suffer from the proximity of a cement filling.

All this is most interesting, and Dr. Kulka has placed the profession in his debt by his well conducted experiments. Nevertheless, there is

*A translation of Dr. Kulka's paper is in type and will appear in an early issue of ITEMS OF INTEREST.

another viewpoint, and that is that in deep-seated caries there is little doubt but that infection has penetrated to the pulp, and that such pulps being in a more or less pathological condition, are doomed, whether the filling that covers them be inserted with or without the interposition of cement.

The question may well be asked, "What is conservative treatment of the dental pulp?" The common answer undoubtedly would be "Such treatment as will permit the placing of a filling without first destroying and removing the pulp." Such treatment may be conservative of the pulp, but in many cases it can scarcely be considered conservative treatment in a broader sense of the term; for conservative treatment in medical parlance is that conduct of the case by the practitioner which takes the least risk with the future health and comfort of his patient.

The placing of a cement, or any other sort of filling in a cavity where the pulp, though not actually exposed, is really barely covered with dentine, may be, and is, the easiest method of practice for the dentist, but it is fraught with tremendous risk on the part of the patient. It is probable, nay it is almost certain, that just as soon as the enamel cap is actually penetrated by caries, the pulp takes cognizance of the encroachment. The building of secondary dentine against the approach of the "enemy" is a pathological rather than a physiological action of the pulp. The nearer the approach of the decay, the more disturbed becomes the pulp.

In such cases, when in doubt, dentists often decide to "give the pulp the benefit of the doubt," whereas in all such conditions he should "give the patient the benefit of the doubt," by removing the pulp before filling the tooth. In such cases the pulp is practically always in a pathological state, but being still vital, may be removed with antiseptic precautions, with perfect assurance that the future permanent comfort of the patient will be conserved. If left in place, such treatment usually leads to a sequence which includes first, a loss of use of the tooth, and discomfort because "the tooth is so sensitive to heat and cold." Second, a period of comparative comfort may ensue, followed sometimes by mysterious neuralgias, but more often terminating in the death of the pulp with septic infection of the apical region. This may not finally come about for several years, and then it may be found that the canals have become so attenuated, or so clogged with secondary dentinal deposits that thorough

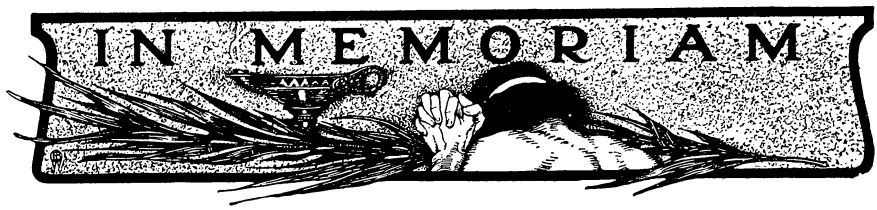
cleansing of them becomes almost an impossibility. Such root canal work is all too often indifferently done, and the tooth, if saved at all, remains "lame" and of little service to its possessor.

Conservative treatment of the dental pulp in future should mean the complete extirpation of all pulps where the slightest doubt of healthy vitality enters the mind of the operator. Let us apply the word conservative to the treatment rather than to the pulp itself.

A Most Unfortunate Error.

In the February issue occurred an error which an exhaustive investigation has failed to explain. The splendid paper by Dr. Lawrence Baker, reporting the result of his experiments upon rabbits, was credited to Dr. DuBois. Dr. Baker's name properly appeared in the galley proof, which was sent to him for correction. It was still in place when the editor passed the final page proofs. Down at the printing office, the proofreaders declare that no correction was ordered by them. The foreman had no knowledge of the change until we called his attention to the blunder after the magazines had been printed and bound. The pressmen have no recollection of a line being dropped and another substituted. The authorship is correctly attributed to Dr. Baker in the index. Nevertheless, the magazine came off the presses with the name of Dr. DuBois substituted for that of Dr. Baker. There is but one explanation: the blame must be attributed to the "Printer's Devil." In fact, that is what Printer's Devils are manufactured for, to bear blame that no one else will shoulder. In justice to Dr. Baker, we earnestly ask all subscribers who bind their journals to correct this error, in pen and ink, at once, so that future readers, who may read the article, and not see this correction, may know at once who really made these original and valuable experiments, and who wrote the paper.

DR. GEO. S. ALLAN.



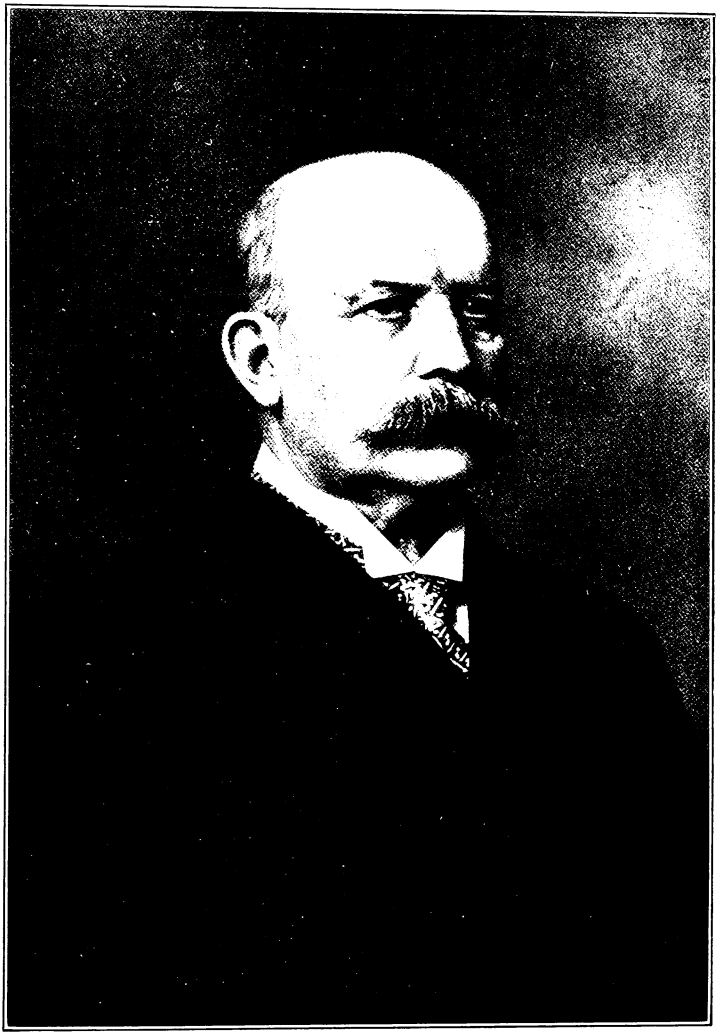
George Smith Allan, D.D.S.

The career of Dr. George S. Allan, who died suddenly on January 15, 1911, was worthy of our attention, and should be a stimulus, especially to the younger men of a profession.

Dr. Allan was born in Detroit, Mich., June 14, 1837, the son of an artist who had a large family and limited means. Our friend became anxious in his early years to become independent and self-supporting, and at the same time to acquire more education than could be obtained in the public and high schools of Cleveland, Ohio, to which city the family had moved. He succeeded in working his way, as it is commonly phrased, through Kenyon College, Ohio, graduating there in 1859. He then studied dentistry, and graduated from the Cincinnati Dental College in 1861, and took a further course of dental study in Philadelphia. Dr. Allan began practice in Newburgh, N. Y., in 1862, and transferred his office to New York City in 1869, where he attained a prominent position with a large clientèle among the most intelligent and cultivated people.

In his profession he sustained the highest standards, and was recognized by his confrères as being interested in the scientific, as well as the practical, progress of our specialty. Professor R. R. Andrews, of Cambridge, Mass., has, since Dr. Allan's death, written of him: "He has done much in shaping the future character of our profession. His ideals were high." He was much interested in microscopy, and was in 1874 and 1875 Professor of Histology in the New York Homœopathic Medical College. He showed a friendly interest in the welfare of his confrères, especially in the younger men, and when an opportunity offered to help a fellow practitioner, he showed a generous, warm nature. He very justly took pride in the fact that he was able in all the progressive enterprises of his education and practice to support himself and his family, to maintain his credit and pay his debts, and attain a position of considerable independence.

Dr. Allan married in 1867 Eunice Ruth, daughter of Professor Charles Davies, of Fishkill-on-the-Hudson. Nine children were born to them, of whom three died in infancy. He was a member of the Alpha Delta Phi Fraternity, the Sons of the American Revolution, the University Club of New York, the First District Dental Society of New York, and the New York Institute of Stomatology, of which he was at one time president, and in whose activities he was much interested. J. M. H.



DR. LUTHER D. SHEPARD.

Dr. Luther Dimmick Shepard.

Died January 26, 1911, at Wadsworth Hotel, Boston, Mass., Luther Dimmick Shepard, A.B., A.M., D.D.S., D.M.D., aged seventy-three years and four months, from an attack of angina pectoris.

In the death of Dr. L. D. Shepard, the city of Boston loses its foremost practitioner of dentistry.

Dr. Shepard was the son of Rev. John W. and Eliza (Burns) Shepard, and was born at Windham, Maine, September 11, 1837. Soon after his birth his family moved to South Merrimac, Mass., and here and in Nashua, N. H., he received his early education in the public schools.

The exact date of his adoption of the practice of dentistry and the history of his early life are not obtainable, but it is known that he was engaged in practice as early as 1858 in Bristol, N. H.; that he took the degree of D.D.S. at the Baltimore College of Dental Surgery in 1861, and that he received from Amherst College the degree of A.B. in 1862, the same institution conferring upon him the A.M. degree (Honorary) in 1868, Harvard Dental School afterward honoring him with the degree of D.M.D. in 1879. During his attendance at Amherst he practiced dentistry in the college town, in 1865 removing to Salem, Mass., followed not long after by his removal to Boston, where he was associated for several years with the late Drs. Josiah Tucker and George T. Moffatt. Since about 1880 he has been associated with Dr. William P. Cooke, his son, Luther D. Shepard, Jr., joining them on his graduation from Harvard Dental School in 1902.

Dr. Shepard was a dental practitioner of international reputation. He had a strong and magnetic personality; was an ambitious and energetic worker for professional progress, and early became a powerful factor in the dental profession of this country. He was particularly loyal to his profession. The practice of dentistry was, to him, a vocation worthy of the highest type of man, and his sentiments along these lines have done much to inspire those of the younger practitioners who were fortunate enough to come under his influence. His interest in the young men of his profession was well known, and he would attend their society meetings at great personal sacrifice whenever he could "lend a hand" for their benefit. He was equipped, bounteously, with all of those qualities of nature which contribute to the full, broadly developed manhood. If occasion demanded, he was a relentless fighter for what he believed was the right, and, at the same time, was imbued with the spirit of human brotherhood to a remarkable degree, and his heart was ever ready to respond to the demands of those who seemed to need his fraternal sympathy.

Dr. William P. Cook, his associate for the last thirty years, says of

him: "Dr. L. D. Shepard inherited a remarkable physique and a keen intellect. He was the product of the best New England stock. Among his chief characteristics was his confidence in himself. His patients became imbued with this confidence, and they believed in him. By continuous application he trained himself to succeed in doing difficult operations, and this quality was very helpful in making his success. He possessed a literary talent, combined with speaking ability, second to no one in dentistry in New England. He took pride in the most recent improvements in dentistry. He was very enthusiastic in his work, and rejoiced to show the results to his associates and brother practitioners, and this characteristic was with him until the day of his death. He looked at every question in a large, broad way and, for this reason, he was not always understood by smaller men."

Dr. Shepard was always prominently identified with professional society proceedings; was a conscientious and tireless worker, and held many important offices.

He was a member and prominent worker on the committee of three appointed in 1866 by the Massachusetts Dental Society to try to bring about the establishment of a dental course in connection with Harvard Medical School and, when their efforts were crowned with success in 1868 and the dental school was started, Dr. Shepard was made professor of operative dentistry, which chair he held for fourteen years.

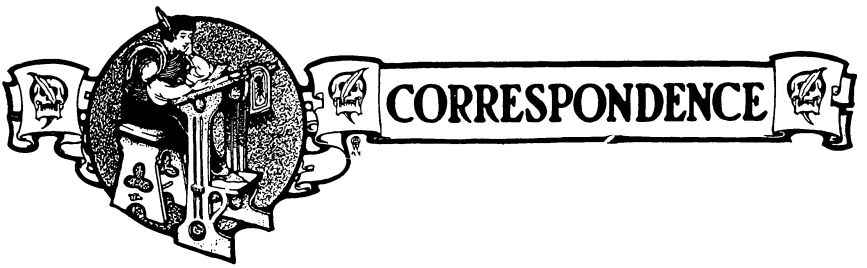
When the Massachusetts Board of Registration in Dentistry was established in 1887, he was appointed by Gov. Ames a member of the Board, and became its president at its first meeting, holding this office until his resignation in 1892.

He was a member and active worker in the following organizations, in many of which he held the office of president: American Dental Association, National Dental Association, Massachusetts Dental Society, Delta Sigma Delta Fraternity, Dental Protective Association of the United States, Harvard Dental Alumni Association, Harvard Odontological Society, American Academy of Dental Science, Merrimac Valley Dental Association, Connecticut Valley Dental Society, New Hampshire Dental Society (Hon.), Maine Dental Society (Hon.), New England Amherst Alumni Association, Boston University Club, Boston Athletic Association, Boston Yacht Club, Eastern Yacht Club, Dorchester Yacht Club, Winslow Commandery Knights Templar.

He was elected president of the International Dental Congress at its meeting in Chicago in 1892.

Dr. Shepard was married in 1871 to Miss Josephine Bailey, of Boston, who, with one son, Dr. Luther Dimmick Shepard, Jr., survives him.

EDWIN N. KENT.



The Taggart-Boynton Suit Not a Final Test of Taggart's Patents.

Editor ITEMS OF INTEREST:

Dear Sir.—I have been requested by Dr. Taggert to write you concerning the settlement with the Dental Protective Association and with reference to Dr. Finley's circular thereon.

The situation seems to be misunderstood by Dr. Finley. Dr. Crouse was subpœnaed as a witness in the Taggert case, to testify to the truth of certain allegations of fact made by one of the witnesses for the defense, concerning which alleged facts Dr. Crouse had personal knowledge. When Dr. Crouse appeared, he asked and was granted permission to examine the testimony in the whole case, and from this testimony he made up his mind that there was a very great probability that Dr. Taggert would win his case in Washington. Dr. Crouse immediately opened negotiations looking to a compromise of which the members of the Association might take advantage. The initial steps and proposals in this matter were all made by Dr. Crouse, and it was only after long negotiations that we were able to concede enough to satisfy him that the members of his Association would not be mistreated after a decision should be rendered, which decision he felt sure would be in our favor.

Dr. Finley makes a great point of the perversion of the purpose of the Dental Protective Association. He overlooks the fact that this Association was organized to protect its members and had power, without any amendment of the by-laws, to enter into a compromise such as was entered into. The compromise was arrived at after months of discussion by the directors of the Association and a large number of its members and was believed to be eminently fair by all parties. Not only that, but at the annual meeting of the Dental Protective Association, shortly after the contract was executed, the contract was read and its execution, together with the amendment to the by-laws, was unanimously ratified. I am informed that Dr. Finley is a member of the Dental Protective Association, and if this be true he was represented in that meeting by a proxy and his vote was recorded in favor of the ratification of the contract and the approval of the act of the board in executing it, the by-laws providing that if a member does not appear at an annual meeting, or designate a proxy, the president shall be authorized to vote as his proxy. It hardly

seems that having thus participated he is in position to complain very seriously of the execution of the contract.

Dr. Finley is evidently misinformed as to the law, as are many of the dentists, or he is laboring to create and maintain a false impression, which many dentists have, and which I will now attempt to set right. If we lose the suit in Washington, which, however, ws fully expect to win, most members of the dental profession assume that we will have finished and that they will then be free to practice Dr. Taggert's processes without interference. Nothing could be farther from the truth. The Washington case, if won by the defendant, simply settles the fact that Dr. George W. Boynton has a right to practice the Taggert processes, in so far as the single patent there in suit is concerned. Dr. Taggert has three other patents, all of which are infringed by every dentist in practice to-day, and upon all of which Dr. Boynton himself would be liable to an additional suit. Every other dentist, except those licensed, is liable, at any moment, to a suit on any or all of the four patents, and in any such suits, if brought, each individual must stand on his own feet and make his own defense in his own way, and the fact that we have beaten Dr. Boynton or that he has beaten us will in no manner affect the obligation of both sides in any subsequent litigation to prove their case. Of course, if, as we anticipate, we win the Boynton case, no dentist will be foolish enough to contest again, but if we lose the case we certainly shall try it again on a different record, besides bringing suit on our other patents.

Personally I have never seen any reason why the dentists should permit themselves to be made to pay for Dr. Boynton's misconduct when they will subsequently have their own to settle for themselves. For instance, what does any particular dentist gain by contributing to Dr. Finley's self-constituted committee? That committee is not defending the profession, it is defending one man; and if we lose the case and sue a dentist who contributed he himself must settle or fight, being in no way affected by the fact that he may have paid to the Finley committee an amount of money equal to the sum for which he could settle. I cannot emphasize too strongly this fact, that each man must stand on his own feet and ultimately make his own defense. The Dental Protective Association has arranged a settlement for its members on a reasonable basis. Personally I have no desire to go a step farther than we have already gone, and I have advised Dr. Taggert to take immediate steps to put up to the profession squarely the obligation of each individual to settle this matter personally. The idea of hanging back until after the Boynton case is disposed of is founded upon a misapprehension, which I hope to demonstrate very speedily to be a misapprehension.

As to the Boynton case itself, our testimony will be closed this week and the case can be tried this spring. As before stated, I have every hope of winning it; but you may remember that Mr. Choate, of the New York Bar, once stated that he never had but one case he was sure of winning and that he lost that. No lawsuit is certain in its outcome, but I have won a great many harder cases than this. If we do lose this suit, we have just got fairly started, for reasons already pointed out.

Yours very truly,

RUSSELL WILES.

Dyrenforth, Lee, Chritton and Wiles,
Patent Attorneys,
Chicago, Ill., February 13, 1911.

New York State Board of Health.

Action in Regard to Oral Hygiene.

Editor of ITEMS OF INTEREST:

Dear Sir—After two conferences between Dr. W. A. Howe, Dr. W. A. White and Dr. Herbert L. Wheeler, it has been decided that the first work of the Dental Consultants and Lecturers of the New York State Board of Health will be to secure the necessary equipment for illustrated lectures. These lectures to be given, as are others, authorized by the State Board of Health, to further the work of educating the public to maintain a more hygienic condition of the mouth and teeth; the lectures being a part of a series which are authorized by the State Board of Health on the question of general hygiene. For the present, town and city authorities, boards of health, boards of education, and so forth, in the State of New York, who wish it, will be able to obtain the services of Dr. White and Dr. Wheeler as lecturers on the subject of mouth hygiene.

As the work expands, and as funds are appropriated by the State, it is hoped that the work of the present consultants and lecturers will be given over entirely to organization, and that many more dentists may be eventually put in the field to carry on the educational work throughout the State of New York, and to advise and assist health and school authorities and dental organizations in the necessary work of establishing clinics for attending to the practical part of dental troubles.

Hospital, health and educational authorities, also dental societies, who would like the assistance and co-operation of the State Board of Health on matters pertaining to oral hygiene, should communicate directly with the New York State Board of Health at Albany, N. Y.

HERBERT L. WHEELER.

SOCIETY ANNOUNCEMENTS

National Society Meetings.

NATIONAL DENTAL ASSOCIATION, Cleveland, Ohio, July 25th to 28th, 1911. Secretary, Dr. H. C. Brown, 185 E. State St., Columbus, O.

SOUTHERN BRANCH OF THE NATIONAL DENTAL ASSOCIATION, Atlanta, Ga., April 4, 5, 6, 1911. Secretary, Dr. W. G. Mason, Tampa, Florida.

AMERICAN SOCIETY OF ORTHODONTISTS, September 20, 21, 22, 23, 1911, Boston, Mass.
Secretary, Dr. F. C. Kemple, 576 Fifth Avenue, New York.

State Society Meetings.

ALABAMA DENTAL ASSOCIATION, Montgomery, Ala., May 9, 1911.
Secretary, Dr. E. W. Patten, Selma, Ala.

ARKANSAS STATE DENTAL ASSOCIATION, Pine Bluff, Ark., about June 1st.
Secretary, Dr. I. M. Sternberg, Fort Smith, Ark.

CALIFORNIA STATE DENTAL ASSOCIATION.
Secretary, Dr. C. E. Post, 126 Stockton St., San Francisco, Cal.

COLORADO STATE DENTAL ASSOCIATION, Boulder, Colo.
Secretary, Dr. Chas. A. Monroe, Willard Block, Boulder, Colo.

CONNECTICUT STATE DENTAL ASSOCIATION, Hartford, Conn., April 18, 19, 1911.
Sec'y, Dr. Robert H. W. Strang, Sanford Bldg., Bridgeport, Conn.

DELAWARE STATE DENTAL SOCIETY.
Secretary, Dr. Warren Combs, 410 Delaware Ave., Wilmington, Del.

FLORIDA STATE DENTAL SOCIETY, Pensacola, Fla., June 20, 1911.
Secretary, Dr. W. A. Dean, Tampa, Fla.

GEORGIA DENTAL SOCIETY, Macon, Ga., June 8, 1911.
Secretary, Dr. DeLos H. Hill, Grant Bldg., Atlanta, Ga.

ILLINOIS STATE DENTAL SOCIETY, Peoria, Ill., May 9, 10, 11, 12, 1911.
Secretary, Dr. J. F. F. Waltz, Decatur, Ill.

INDIANA STATE DENTAL ASS'N, Indianapolis, Ind., May 16, 17, 18, 1911.
Secretary, Dr. Otto U. King, Huntington, Ind.

IOWA STATE DENTAL SOCIETY, Des Moines, May 2, 3, 4, 1911.
Secretary, Dr. W. G. Crandall, Spencer, Ia.

KENTUCKY STATE DENTAL ASSOCIATION, Owensboro, Ky., May 23, 24, 25, 1911.
Secretary, Dr. W. M. Randall, Louisville, Ky.

MAINE DENTAL SOCIETY, Fabyan, N. H., June 27, 28, 29, 30, 1911.
Secretary, Dr. I. E. Pendleton, Lewiston, Me.

MARYLAND STATE DENTAL ASSOCIATION.
Secretary, Dr. F. F. Drew, 701 N. Howard St., Baltimore, Md.

MASSACHUSETTS DENTAL SOCIETY.
Secretary, Dr. C. W. Rogers, 165 Howard St., Dorchester, Mass.

MICHIGAN STATE DENTAL SOCIETY.
Secretary, Dr. Marcus L. Ward, Detroit, Mich.

MINNESOTA STATE DENTAL ASSOCIATION.
Secretary, Dr. B. A. Sandy, Andrus Bldg., Minneapolis, Minn.

MISSISSIPPI DENTAL ASSOCIATION, Hattiesburg, Miss., May, 1911.
Secretary, Dr. L. B. Price, Corinth, Miss.

MISSOURI STATE DENTAL ASSOCIATION, Joplin, Mo., June 13, 14, 15, 1911.
Secretary, Dr. S. C. A. Rubey, Clinton, Mo.

MONTANA STATE DENTAL SOCIETY, Helena, Mont., June 2, 3, 1911.
Secretary, Dr. R. H. Severance, Great Falls, Mont.

NEBRASKA STATE DENTAL SOCIETY, Lincoln, Neb., May 16, 17, 18, 1911.
Secretary, Dr. J. H. Wallace, 212 Brown Block, Omaha, Neb.

NEW MEXICO DENTAL SOCIETY.
Secretary, Dr. L. E. Erwin, Carlsbad, New Mexico.

NEW HAMPSHIRE STATE DENTAL SOCIETY, Fabyan, N. H., June 27, 28, 29, 30, 1911.
Secretary, Dr. F. F. Fisher, 913 Elm St., Manchester, N. H.

NEW JERSEY STATE DENTAL SOCIETY, Asbury Park, N. J., July 19, 20, 21, 1911.
Secretary, Dr. Chas. A. Meeker, 29 Fulton St., Newark, N. J.

NEW YORK STATE DENTAL SOCIETY, Albany, N. Y., May 4, 5, 6, 1911.
Secretary, Dr. A. P. Burkhart, 52 Genesee St., Auburn, N. Y.

NORTH CAROLINA DENTAL SOCIETY, Morehead City, N. C.
President, Dr. A. H. Fleming, Louisburg, N. C.

NORTH DAKOTA STATE DENTAL SOCIETY, May 11, 1911.
Secretary, Dr. F. A. Bricker, Fargo, N. Dak.

OHIO STATE DENTAL SOCIETY.
Secretary, Dr. F. R. Chapman, Schultz Bldg., Columbus, Ohio.

OREGON STATE DENTAL ASSOCIATION.
Secretary, Dr. F. H. Walgamitt, Medical Bldg., Portland, Ore.
PENNSYLVANIA STATE DENTAL SOCIETY, Scranton, Pa., June 27, 28, 29, 1911.
Secretary, Dr. Luther M. Weaver, 7103 Woodland Ave., Philadelphia, Pa.
RHODE ISLAND DENTAL SOCIETY.
Secretary, Dr. C. A. Carr, 209 Spring St., Newport, R. I.
SOUTH CAROLINA DENTAL ASSOCIATION, Columbia, S. C.
Secretary, Dr. W. B. Simmons, Piedmont, S. C.
SOUTH DAKOTA STATE DENTAL SOCIETY, Aberdeen, S. D., May 16 and 17, 1911.
Secretary, Dr. M. R. Hopkins, Aberdeen, S. D.
TEXAS STATE DENTAL ASS'N, San Antonio, Tex., May 11, 12, 13, 1911.
Secretary, Dr. J. G. Fife, 736 Wilson Blvd., Dallas, Tex.
UTAH STATE DENTAL SOCIETY.
Sec'y, Dr. W. G. Dalrymple, 2421 Washington Ave., Ogden, Utah
VERMONT STATE DENTAL SOCIETY, Fabyan, N. H., June 27, 28, 29, 30, 1911.
Secretary, Dr. H. F. Hamilton, Newport, Vt.
VIRGINIA STATE DENTAL ASSOCIATION, Richmond, Va., June 14, 15, 16, 1911.
Secretary, Dr. W. H. Pearson, Hampton, Va.
WASHINGTON STATE DENTAL SOCIETY, Tacoma, Wash., June 1, 2, 3, 1911.
Secretary, Dr. Burton E. Lemley, 930 C St., Tacoma, Wash.
WEST VIRGINIA STATE DENTAL SOCIETY.
Secretary, Dr. F. L. Wright, Wheeling, W. Va.
WISCONSIN STATE DENTAL SOCIETY, Eau Claire, Wis., July 11, 12, 13, 1911.
Secretary, Dr. O. G. Krause, Wells Bldg., Milwaukee, Wis.

Dinner to Dr. Frank Holland.

A complimentary dinner will be given by the members of the Southern Branch of the National Dental Association during its meeting in Atlanta, Ga., April 4th, 5th, 6th, to Dr. Frank Holland, of Atlanta, Ga.

THOS. P. HINMAN, Chairman.

Southern Branch of the National Dental Association.

The thirteenth annual meeting of the Southern Branch of the National Dental Association will be held in Atlanta, Ga., April 4, 5, 6, 1911.

W. G. MASON, Cor. Secretary.

Tampa, Fla.

OFFICERS

Dr. H. Clay Hassell, President.....Tuscaloosa, Ala.
Dr. W. H. Scherer, 1st Vice-President.....Houston, Tex.
Dr. J. D. Towner, 2nd Vice-President.....Memphis, Tenn.
Dr. H. M. Davidson, 3rd Vice-President.....Hubbard, Tex.
Dr. W. A. Dean, Recording Secretary.....Tampa, Fla.
Dr. W. G. Mason, Corresponding Secretary.....Tampa, Fla.
Dr. B. D. Brabson, Treasurer.....Knoxville, Tenn.

EXECUTIVE COMMITTEE

Dr. V. E. Turner, Chairman, Raleigh, N. C.; Dr. B. Holly Smith, Baltimore, Md.; Dr. R. W. Carroll, Beaumont, Tex.; Dr. J. P. Gray, Nashville, Tenn.; Dr. A. J. Cottrell, Knoxville, Tenn.; Dr. C. L. Alexander, Charlotte, N. C.

STANDING COMMITTEES

For the Thirteenth Annual Meeting of the Southern Branch of the National Dental Association to be held in Atlanta, Georgia, April 4, 5, and 6, 1911

HYGIENE—J. P. Corley, Greensboro, Ala., Chairman; W. E. Walker, New Orleans, La.; J. D. Towner, Memphis, Tenn.

PROSTHETICS—L. A. Crumley, Birmingham, Ala., Chairman; P. T. Dashwood, Atlanta, Ga.; H. M. Davidson, Hubbard, Tex.; W. R. Wright, Jackson, Miss.; C. P. Brockett, Atlanta, Ga.; E. H. Kettig, Louisville, Ky.

ORTHODONTIA AND ORAL SURGERY—J. A. Gorman, New Orleans, La., Chairman; W. E. Walker, New Orleans, La.; J. D. Eby, Atlanta, Ga.; M. F. Finley, Washington, D. C.; R. C. Young, Aniston, Ala.; W. E. Grant, Louisville, Ky.

OPERATIVE DENTISTRY—A. R. Melendy, Knoxville, Tenn., Chairman; S. L. Rich, Nashville, Tenn.; C. L. Gunn, Gadsden, Ala.; J. G. Fife, Dallas, Tex.; S. H. McAfee, New Orleans, La.

PATHOLOGY, MATERIA MEDICA AND THERAPEUTICS—L. G. Noel, Nashville, Tenn., Chairman; A. J. Cottrell, Knoxville, Tenn.; R. L. Simpson, Richmond, Va.; Bush Jones, Dallas, Tex.; C. E. Vignes, New Orleans, La.

MICROSCOPY, PHYSIOLOGY AND BACTERIOLOGY—F. L. Hunt, Asheville, N. C., Chairman; L. G. Noel, Nashville, Tenn.; I. N. Carr, Durham, N. C.; W. A. Lovett, Brewton, Ala.

CHEMISTRY, METALLURGY AND ANATOMY—R. L. Simpson, Richmond, Va.; G. S. Vann, Gadsden, Ala.; I. B. Howell, Paducah, Ky.; F. L. Hunt, Asheville, N. C.; A. J. Reives, Selma, Ala.

APPLIANCES AND IMPROVEMENTS—W. H. Scherer, Houston, Tex., Chairman; F. W. Stiff, Richmond, Va.; Celia Rich, Nashville, Tenn.

EDUCATION, LITERATURE, NOMENCLATURE AND VOLUNTARY ESSAYS—H. H. Johnson, Macon, Ga., Chairman; L. F. Luckie, Birmingham, Ala.; C. J. Grieves, Baltimore, Md.; H. T. Stewart, Memphis, Tenn.; A. W. Patton, Tuscaloosa, Ala.

CLINICS—J. H. Lorenz, Atlanta, Ga., Chairman; H. J. Feltus, Baton Rouge, La.; L. P. Dotterer, Charleston, S. C.; Celia Rich, Nashville, Tenn.; C. L. Alexander, Charlotte, N. C.; R. B. Bogle, Nashville, Tenn.; Wm. Crenshaw, Atlanta, Ga.; J. W. David, Corsicana, Tex.

CLOSER RELATIONSHIP—B. Holly Smith, Baltimore, Md.; M. F. Finley, Washington, D. C.; F. L. Wood, Roanoke, Va.; F. L. Hunt, Asheville, N. C.; L. P. Dotterer, Charleston, S. C.; C. M. Barnwell, Atlanta, Ga.; W. A. Dean, Tampa, Fla.; J. P. Corley, Greensboro, Ala.; W. R. Wright, Jackson, Miss.; S. H. McAfee, New Orleans, La.; R. W. Carroll, Beaumont, Tex.; W. E. Grant, Louisville, Ky.; L. G. Noel, Nashville, Tenn.; T. M. Wyatt, Bentonville, Ark.

COMPLIMENTARY BANQUET—T. P. Hinman, Atlanta, Ga.; B. F. Thielen, Paris, Tex.; J. D. Eby, Atlanta, Ga.; B. Holly Smith, Baltimore, Md.; J. Rollo Knapp, New Orleans, La.; J. H. Crossland, Montgomery, Ala.; M. M. Eble, Louisville, Ky.; R. H. Jones, Winston, N. C.; C. F. Kemp, Key West, Fla.; W. W. Westmoreland, Columbus, Miss.

LOCAL COMMITTEE ON ARRANGEMENTS—C. M. Barnwell, Chairman, Atlanta, Ga.; Railroad Rates: Frank Holland, Wm. Zirkle; Place of Meeting: DeLos Hill, Wm. Crenshaw, H. R. Jewett; Entertainment: Robin Adavir, DeLos Hill; Exhibits: Geo. S. Tigner, M. D. Huff; Clinics: Wm. Zikle, Frank Holland, C. M. Barnwell, Jr.; Publicity: DeLos Hill, Geo. S. Tigner; Bureau of Information: Robin Adair, D. B. Smith, S. W. Foster.

One Hundred Dollars Offered for Best Oral Hygiene Exhibit.

To the members of the Southern Branch of the National Dental Association and all others to whom this may come:—

At the Houston meeting a substantial contribution was made to the Oral Hygiene Committee for the purpose of inaugurating a progressive campaign for popular dental education.

At that time your chairman expected to retire from the Oral Hygiene Committee of the National Dental Association and devote all the time at his command to the work in the Southern Branch; but, as matters developed it seemed in the opinion of others necessary that he should continue on the National committee.

As it has since fallen out he has traveled some six thousand miles,

delivered about seventy-five lectures and addressed approximately fifty thousand persons on the subject of mouth hygiene, but principally in northern and eastern territory.

This has taken so much more time and energy than was anticipated that the work in the Southern Branch territory has been neglected. While it is encouraging that other sections are taking such an active interest in the work it is much to be regretted that we in the South are far less active and unfortunately less interested.

It was your chairman's plan to secure the co-operation of the Oral Hygiene Committee of each state association and have them take up the detail work in their several communities.

It was also our plan to have selected some auspiciously situated city in each state which might be regarded as headquarters for that state. In this city there should be a free dental dispensary, lectures in the public schools and an inspection of the mouths of the school children.

So far we have been unable to carry this program through, but it is hoped that by the next meeting in Atlanta we will be able to report more favorably. We plan to make the subjects of oral hygiene, dental prophylaxis and popular dental education a conspicuous feature of the Atlanta meeting.

To this end I am asking each of you to whom this letter may come to construct some kind of educational exhibit for teaching oral sanitation to the laity, suitable either for the office, public school, public buildings such as town hall, court house, railroad station, etc.

Anything which has for its conspicuous feature something which pertains to the prevention of oral and dental disease, from a toothpick to a sanitary bridge, will be a welcome addition to our exhibit. We especially desire models showing typical mouth conditions.

Drawings which show the influence of mouth conditions on the profile and internal structure of the facial skeleton are greatly desired. Sanitary orthodontic appliances are of especial importance. We want models showing improperly contoured fillings, fillings which have not been properly extended and fillings with unfinished and overhanging margins. The same model should show correct specimens also. A set of models and other illustrations showing calcific deposits and their consequences, and the treatment which the patient should give such a case are of great importance. We also want a complete dental armament.

The Oral Hygiene Committee hereby offers one hundred dollars to the man delivering the best exhibit on the following conditions:—

First: Exhibitor must be a member in good standing of the Southern Branch. He may become a member at the Atlanta meeting.

Second: Exhibit must be suitable for keeping in the dental office

for the purpose of illustrating the influence of typical mouth conditions, methods by which these conditions can best be corrected and especially the technique of mouth hygiene, including both the care and use of the mouth and teeth.

Third: Exhibit must include articulated model showing consequences at the age of about forty years of the extraction of a first lower molar before the fifteenth year. Drawings should accompany this model and show the relative breathing capacity of each nasal fossa in consequence of the deflection of vomer and effect on turbinated bones, also visual focus, etc. Photographs should show profile and full face. Where the exhibit is a skeleton, drawings picturing probable consequences will be accepted.

Fourth: Exhibit must contain models mounted with both temporary and permanent natural teeth, as wide a range of conditions as possible is desired. Articulated models are preferred.

Fifth: Exhibit must show a sanitary and an unsanitary orthodontic appliance. One feature of the appliance must be arch expansion. Other features also are desirable. If appliance is made of base metal it should be plated.

Sixth: Exhibit must contain models showing sanitary and unsanitary fillings, crowns and bridgework. Base metal may be used but should be plated.

Seventh: Exhibit must show a complete dental toilet armamentarium with typewritten instructions for its use.

Eighth: The exhibit which receives the prize shall become the property of the Southern Branch of the National Dental Association, to be used by them as they may desire, and they shall have the privilege of duplicating and dispensing as they wish. However, this shall not prohibit the author or compiler of the exhibit from having the same privilege.

Any one outside of the Southern Branch membership may enter the competition upon condition that if an outside exhibitor should receive the highest grade he shall receive only fifty dollars as prize instead of one hundred dollars.

It is not necessary that an exhibitor design or make the stuff of which his exhibit is made up. Any or all of it may be a compilation.

The exhibits entering for prize will be numbered and arranged and shall constitute a part of the general exhibition which the committee is planning to make for the meeting; but, all except the one receiving the prize may be reclaimed after the meeting.

The judges will be kept in ignorance of the authors of exhibits until after the prize is awarded.

Anyone who has anything pertaining to prophylaxis, to be used either

in teaching the dentist or the patient the science of immunity, is earnestly requested to either bring or send it to the committee headquarters in Atlanta several days in advance of the meeting, whether he wishes to enter the competition or not. This invitation and request applies to men outside of the Southern Branch as well as in it and to manufacturers as well as dentists. However, this does not mean that a dentifrice manufacturer will be given free space for his advertising stand, but he may contribute a sample of each of his articles with his business address without charge.

Magazines, reprints and literature on dental prophylaxis will be gladly received by the committee and distributed without cost to the author.

It is now only two months before the meeting, but if each of you who read this letter will do his duty toward the cause of oral hygiene the Atlanta meeting will mark an era in the practice of dental science.

The Oral Hygiene Committee of the National Dental Association is maintaining an education and information bureau at No. 800 Schofield Building, Cleveland, Ohio, at considerable expense. If you have any contribution to make to the committee it will be thankfully received and acknowledged.

If you want to know anything about the work in the United States write to the bureau and enclose stamp for reply.

The next meeting of the National Association in Cleveland, Ohio, July 25-28th, will be a record breaker in dental society history, and it is safe to say that oral hygiene will be the most conspicuous feature of the meeting.

The Atlanta meeting of the Southern Branch will be the most important dental meeting to the dentists of the South that has ever been held. We want you to come and bring something for the Oral Hygiene Committee, if it is nothing more than a toothpick.

Write quickly to the chairman and tell him what you will do. Send stamp for any desired information, but don't ask foolish questions. Our time is too valuable. However, if you plan to enter for the prize we will take pleasure in answering all questions, foolish or otherwise.

Sincerely,

J. P. CORLEY,

Chairman.

GREENSBORO, ALA., February 3rd, 1911.

ITEMS OF INTEREST

Connecticut State Dental Association.

The forty-seventh annual meeting of the Connecticut Dental Association will be held at Hartford, April 18 and 19, 1911.

It is intended that this shall be the largest and best meeting ever held by this Society. A concerted effort is being made to increase the membership. A cordial invitation is extended to the members of the profession to attend.

E. Abbott, Secretary.

Waterbury, Conn.

Alumni Association of St. Louis Dental College Annual Clinic.

The annual clinic of the Alumni Association of the St. Louis Dental College will be held in the college building on Saturday, April 22, 1911. All ethical practitioners are cordially invited to attend.

Francis P. Mahon, Secretary.

Virgil Loeb, President.

New York State Dental Society.

The forty-third annual meeting of the New York State Dental Society will be held at Albany, N. Y., Thursday, Friday and Saturday, May 4, 5 and 6, 1911.

A cordial invitation is extended to all ethical dentists resident of New York and sister States. The officers and committees are hard at work to make this an entertaining and instructive meeting.

A. P. Burkhart, Secretary.

52 Genesee St., Auburn, N. Y.

Massachusetts Board of Registration in Dentistry.

A meeting of the Massachusetts Board of Registration in Dentistry will be held at Harvard Dental Infirmary, Boston, Mass., March 1-2-3, 1911. For information, apply to Dr. G. E. Mitchell, Secretary Exchange Bldg., 14 Water Street, Haverhill, Mass.

Indiana State Dental Association.

The fifty-third annual meeting of the Indiana State Dental Association will be held at Indianapolis, May 16-17-18, 1911, at the Claypool Hotel.

Plans are being perfected for a great meeting.

Otto U. King, Secretary, Huntington, Ind.

C. D. Lucas, President, Indianapolis, Ind.